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An ever-greater number of journals now not only publish text content but also try to provide graphical abstracts for manuscripts.

A graphical abstract is a graphical presentation of the main conclusions of the paper. The figure can be taken from the paper or specially designed. At the same time, it should represent the content of the paper as much as possible and be understandable for readers.

However, it is not always possible to create a graphical abstract, for example, for review and theoretical articles in the field of social and economic sciences.

The editors of the Economic Consultant journal suggested publishing a “word cloud” as a graphical supplement to a scientific paper. Since 2019, the “word cloud” has been published for each paper.

A word cloud is a visualization of word frequency in a text. The font size of each word in the “cloud” is determined by its prevalence in the text. The word cloud helps readers to understand what basic keywords and terms the author uses directly in the text of the paper.

To present this visualization, the editors decided to use the service https://wordscloud.pythonanywhere.com/. The layout designer can process the paper, using only its text (without the title, abstract, and references).

From 2020, the editorial board decided to publish such graphical supplements not only in pdf articles but also on the pages of journal articles.

However, we understand that graphical supplements cannot substitute for graphical abstracts, and the development of the latter seems to us to be a promising trend in the development of the Economic Consultant journal.

Research and analysis of imperfect competition in the Russian labor market and its projected development

Introduction. The relevance of the study lies in the fact that the spreading negative socio-economic phenomena of the Russian labor market, such as poverty of the working population, inequality in the income distribution, etc., intercept the reproduction of the labor force, reducing its quality and introducing undesirable structural changes. The reasons for the manifestation of negative socio-economic phenomena in the Russian labor market are based on the principles of imperfect competition in social and labor relations. Specifically, the social and labor relations of labor market subjects have no mutually beneficial basis and are most often aimed at satisfying the economic interests of the employers and infringing on the socio-economic interests of the employees, as well as the fact that the employees are required to have the manpower quality specifications that they lack or the employees have the manpower quality specifications that are not demanded by the employer, i.e. the labor market. The aim of the study is the quantitative assessment of the manifestation degree of imperfect competition in the Russian labor market with the possibility of predicting its spread to social and labor relations, with the subsequent development of conceptual solutions to regulate the imperfect competition in the Russian labor market.

Materials and Methods. A set of methods of statistical and mathematical research is used for the purposes of this study. Mathematical modeling of imperfect competition is carried out by methods of probabilistic and vector analysis. The empirical study of imperfect competition is carried out by the method of statistical observation.

Results. The result of mathematical modeling and statistical research of imperfect competition is the conclusion about the cyclical development of competition in the Russian labor market, where the cyclical change occurred in 2008 and 2016 and was largely determined by the general trend of the country's economic development and the ongoing crisis phenomena. Relatively sustainable development of competition is observed pertaining to a territorial feature, since there is almost no change in segment groups as a result of cyclical development of competition, which can be successfully interpreted as inertia (stagnation) in the development of competition. The set of measures taken by the state for the development of competitive processes in social and labor relations and regulation of the competitive environment in the Russian labor market is characterized by its insignificant impact on the segment structure and features of competitive processes and components of the competitive environment, as well as by the ineffectiveness of the implemented measures for government regulation.

Discussion and Conclusion. The preservation and spread of the influence of the imperfect competitive processes and imperfect competitive conditions for the specified features and components are predicted in the Russian labor market. The use of quantitative indicators of imperfect competition is one of the methods for the performance evaluation of state regulation of imperfect competition in the Russian labor market.

INTRODUCTION

In the modern Russian labor market, social and labor relations are accompanied by negative social and economic phenomena. One group of negative phenomena includes the poverty of the working population, inequality in the income distribution, discrimination in wages, shadow forms of labor and employment remuneration, illegal and interregional migration, and labor exploitation. Another group of phenomena includes the shortage or excess of personnel. These factors determine the imperfect nature of competition in the Russian labor market [24].

The imperfection of competition in the Russian labor market manifests itself in the fact that the social and labor relations of labor market subjects have no mutually beneficial basis and are aimed mostly at satisfying the economic interests of the employers and infringing on the social and economic interests of the employees. Moreover, the employees are required to have the manpower quality specifications that they lack or the employees have the manpower quality specifications that are not demanded by the employer, i.e. the labor market [8, 19].

An analysis of the current imperfect competitive situation in social and labor relations showed that the features of competitive behavior of the employees and the employers in the labor market became aspects of manifestation of negative socio-economic phenomena in the labor market, namely, the infringement of social rights and guarantees of the employees, deterioration of working conditions of the latter. At the same time, the conditions for the competitive presence of the employees in the labor market, namely, the discrepancy between the professional and qualification level of employees, the lack of the necessary manpower in the labor market are the aspects of negative socio-economic phenomena of the labor market [1; 13].

Quantitative analysis and assessment of the degree of the imperfect competition manifestation in social and labor relations in the Russian labor market are among the most effective methods for assessment of the impact of competitive factors on the Russian labor market. In this regard, a relevant scientific argument is the construction of a mathematical model able to describe the imperfect competition in the labor market, quantitatively expressing the patterns and features of its manifestation and factor influence on the Russian labor market.

The conceptual aspect of the application of statistical and mathematical analysis methods to competition modeling is that the concept of "competition" is characterized by the relativity of its manifestation; therefore, the use of the probabilistic method (p) of competition modeling is substantiated. The use of probabilistic analysis methods most fully renders possible to reflect the essence of the concept of competition, but at the same time, the use of continuous analysis methods makes it difficult to model social processes of static nature. In this regard, it is proposed to model the competition by probabilistic models using discrete analysis methods.

The results of mathematical modeling and statistical research of imperfect competition are the conclusions about its impact on social and labor relations, as well as its development forecast until 2025.
MATERIALS AND METHODS

Mathematical modeling of labor market competition involves the use of a complex of methods of probabilistic, vector, and static-dynamic analysis in correlation (in the system). The application of a systematic approach to mathematical modeling is due to the epistemological complexity of the economic category of "competition", the essence of which is revealed conceptually by the categorical structure: the concepts of "competitive environment" and "competitive conditions", as well as the concepts of "competitive processes" and "competitive behavior"; and the dialectics of the trilogy of the concepts of "competition", "competitive advantage" and "competitiveness" [3; 4].

The mathematical model describing the competitive environment of subjects’ presence in the labor market is the vector function of a random argument:

$$\vec{K} = (p(x); q(y); g(z))$$

where $p_i(x)$ — health, $q_j(y)$ — education, $g_k(z)$ — labor mobility, where the argument of the vector function is the probabilities of elementary events considered by districts of the Russian Federation (by groups of regions) and given for a calendar time interval (development cycle).

The mathematical model describing competitive processes in the labor market is the vector function of a random argument: $\vec{K} = (p(t); q(t); g(t))$, where $p(t)$ — social guarantees and labor rights, $q(t)$ — government regulation; $g(t)$ — content, condition and labor protection.

$$\begin{align*}
  x_i &= \xi_i(t) \\
  y_j &= \sigma_j(t) \\
  z_k &= \delta_k(t)
\end{align*}$$

where the argument of the random function is $t$ — time, and the value of the argument is a random variable $(x_i, y_j, z_k)$, considered at the moment (or for a period) of calendar time and given by the group of districts of the Russian Federation, and the elements of the transition array are the probabilities of transitions of elementary random events considered at the moment (or for a period) of calendar time and given by the group of districts of the Russian Federation.

The results of mathematical modeling of the competitive environment (competitive conditions) of the labor market are the systems of analytical indicators characterizing the competitive environment and competitiveness, their graphical interpretation, obtaining a competitiveness rating and mapping of the regional labor markets (the regions of the Russian Federation). At the same time, the results of mathematical modeling of the competitive processes (competitive behavior) are the systems of analytical indicators that describe competitive processes and competitive advantages, their graphical interpretation (graphs of states of competitive processes), and the competition development forecasting by extrapolation of the revealed trend.
The practical application of the results of statistical and mathematical competition modeling is manifested in the prediction of the development of competitive situations in the Russian labor market, in the assessment of competitive advantages and competitiveness of labor market actors, as well as in building theoretical and empirical models of competition (ranking and mapping of competitiveness, establishing standards or determinants of competitiveness, development of strategies for competitive behavior and description of competitive behavior models) [20].

The primary stage of the algorithm of empirical research and analysis of competition in the labor market is the research and analysis of the cyclical development of competition, the secondary stage is the research and analysis of the homogeneity of competition development in the considered population, and the third stage is the statistical and mathematical modeling of competition, which involves the mathematical analysis of indicators of competitive states.

Statistical and mathematical research of imperfect competition in the Russian labor market involves the analysis of a system of statistical indicators grouped into two groups – the indicators describing the course of competitive processes in the system of social and labor relations and indicators characterizing the competitive environment in the Russian labor market [6].

The mathematical model of imperfect competition in social and labor relations can be represented by a system of probabilistic indicators of the competitive behavior of the employees describing, first, the state of compliance with respect to "social guarantees and labor rights" of the employees, including the following indicators: the probability of social protection of this part of the economically active population; the probability of unemployment of this part of the economically active population; the probability of participation of this part of the economically active population in labor disputes; the probability of participation of this part of the economically active population in strikes.

Second, the indicators describing the state of the implemented government measures aimed at regulating social and labor relations include the indicators of the probability of employment by the enterprises with private, mixed, and foreign ownership of the employees, engaged in the formal and informal sectors of the economy; the probability of employment in the "small business" sector of the employees, engaged in the formal and informal sectors of the economy; the probability of employment in the informal sector of the economy of some employees, engaged in the formal and informal sectors of the economy; the probability of employment by public and religious enterprises of some employees, engaged in the formal and informal sectors of the economy; the probability of employment in the municipal and state sectors of some of the employees, engaged in the formal and informal sectors of the economy.

Third, the indicators describing the state of "content, conditions and labor safety" of the employees include: the probability of that some of the employed workers will work in normal working conditions; the probability of that some of the employed workers will work in difficult working conditions; the probability of that some of the employees will work in harmful and hazardous working conditions; the probability of that some of the employed workers will experience an accident followed by temporary disability; the probability of that some of the employed workers will experience a fatal accident.
Moreover, the mathematical model of imperfect competition can be represented by a system of probabilistic indicators of the conditions of presence of the employees in the Russian labor market characterizing, first, the health requirements of the employers to the employees, including the probability of that a part of the population of working age will die; the probability of that a part of the population of working age will fall ill and will be temporarily disabled; the probability of that a part of the working-age population will be healthy.

Second, the indicators characterizing the requirements of the employers in terms of education include: the probability that a part of the employed population will have a higher education; the probability of that a part of the employed population will have a secondary vocational education; the probability of that a part of the employed population will have primary vocational education; the probability of that a part of the employed population will have no vocational education.

Third, the indicators characterizing the requirements of the employers in terms of labor mobility include the following indicators: the probability of that a part of the population will be enrolled in the enterprises; the probability of that a part of the population will leave the enterprises; the probability of that a part of the population will remain employed [14].

The method of mathematical analysis of competition indicators (competitive states) involves the analysis, first, in regard to the elements of the probabilistic space, namely in relation to random variables and the probabilities of outcomes of random events. Second, in relation to the system of numerical characteristics of probability spaces (generalizing indicators) – mathematical expectations and dispersions. Thirdly, in relation to the laws of probability spaces – table of the laws of random distribution of variables. Fourth, in relation to the system of transitions of probability spaces – the array of intensities and probabilities of transitions of random events. Fifth, in relation to graphs of transitions of random events and graphs of the distribution of random variables in probability spaces – hodographs (tendencies) of random variables. Sixth, with regard to forecasts and generalizations (interpretation) of the development of elementary random events in probabilistic spaces, extrapolation of trends or distribution density, features of competitive advantage or components of competitiveness, ranking and mapping of administrative districts of the Russian Federation, development vectors or states.

**RESULTS**

The cyclicity analysis of competition development in the Russian labor market showed that the change in trends in competitive states indicators (levels of time series) of the features of competitive processes and components of the competitive environment fell on 2008 and 2016, and was largely determined by the general trend of the country’s economic development and ongoing crisis phenomena. Moreover, the critical year 2008 on the Russian labor market is due to the impact of the global financial and economic crisis, and the critical year 2016 is due to the sanctioned foreign policy pursued by Western countries in relation to Russia since 2014 [16].
The segmentation analysis of competition development in the Russian labor market showed that the distribution of the aggregate of statistical indicators by federal districts for each period of competition development was not uniform. The values of statistical indicators were in the range of 3.61–7.32 times the maximum value over the minimum value. The homogeneous conditions for competition development are observed in the following federal districts: Southern, North Caucasian, Far Eastern – Segment No. 1; Northwestern, Ural, Siberian – Segment No. 2; Central, Volga Federal Districts – Segment No. 3. At the same time, competition development is relatively stable, since the change of segment groups due to cyclical competition development observed in 2008, where the transition of the Northwestern Federal District from the first to the second segment group was noted, as well as the transition of the Volga Federal District from the second to the third segment group [17].

The noted property of the relative stability of competition development can be successfully interpreted as inertia (stagnation) in the development of competition. This state can be observed in cases of incomparability of economic, demographic, social, and other economic conditions, or in the absence of effective regulatory mechanisms of the labor market across federal districts. The latter implies that the regional markets do not implement goal-setting strategies for the competitive behavior of the employees and do not assess the competitiveness of the employees, followed by the implementation of the predictive function of state regulation of the domestic labor market [5; 12].

The analysis of the segmentation diagrams of competition in the Russian labor market showed that the federal districts that formed Segment No. 3 accounted for about 50% of the segment structure. This means that half of the able-bodied population of Russia lives and works in the territories of the Central and Volga Federal Districts. The rest of the structure indicators is distributed between the Northwestern, Southern, and Siberian Federal Districts – 35% and the North Caucasian, Ural, and Far Eastern Federal Districts – 15% (see Figures 1, 2)

**Figure 1** Segmentation diagram for the development of a competitive environment
The result of the mathematical analysis of the indicators of competitive states, characterizing the course of competitive processes in the Russian labor market for the period of 2009–2018, and the competition development forecast until 2025 allowed obtaining the following conclusions [8]. The set of measures implemented by the state for the development of competitive processes in social and labor relations in the Russian labor market is characterized by its insignificant impact on the segment structure and features of competitive processes and can be characterized by the ineffectiveness of the implemented measures as well [10; 11].

The development of competitive processes is influenced by general market factors (external), namely as a result of the implementation of individual strategies for the competitive behavior of the labor market actors. The improvement of the imperfect competition in social and labor relations is expected until 2025.

The dynamics and forecast of the development of competitive processes are observed for all segments. For the "social guarantees and labor rights – social and labor relations" component, a slight increase in the dynamics of the probability that social rights and guarantees of the economically active population will not be violated is expected. The probability of the presence of the economically active population in this competitive state by the end of 2025 amounts to 96% and the growth up to 101% by 2018 is expected. Moreover, a downward trend is expected in the probability that a part of the economically active population will be unemployed, where the probability of an outcome by the end of 2025 equal to 3.5% and a decrease by 67% by 2018 are expected.

For the "state regulation" component, increasing dynamics of the probability of employment of the population at enterprises with private, mixed, and foreign ownership are predicted,
where the probability of an outcome by the end of 2025 will be 59.2% and an increase by 2018 will be 106%. At the same time, insignificant dynamics of employment of the population in the "small business" sector are predicted, where the probability of an outcome by the end of 2025 will be 5.9% and a decrease by 2018 will be 96.8%. Increasing dynamics of the probability of employment of the population in the informal sector of the economy are predicted, where the probability of an outcome by the end of 2025 will be 19.7% and an increase by 2018 will be 110.8%. A downward trend in the probability of employment of the population in enterprises with state and municipal ownership is predicted, where the probability of an outcome by the end of 2025 will be 15% and a decrease will be 74.2% by 2018.

For the "content, conditions and labor safety" component, a downward trend in the employment of the workers by the enterprises with normal working conditions is predicted, where the probability of an outcome by the end of 2025 will be 65% and a decrease by 2018 will be 88.4%. Increasing dynamics of the probability of employment of the population at enterprises and enterprises with difficult working conditions are predicted, where the probability of an outcome by the end of 2025 equals 10.7%, and an increase by 2018 amounts to 135%. Increasing dynamics of the probability of employment of the population by companies and enterprises with hazardous and harmful working conditions are predicted, where the probability of an outcome by the end of 2025 will be 24%, and an increase by 2018 will be 131%.

The result of the mathematical analysis of indicators of competitive states, characterizing the conditions of the competitive environment in the Russian labor market for the period of 2001–2018, and the forecast of the competition development until 2025 allow obtaining the following conclusions. The set of measures taken by the state to regulate the competitive environment in the Russian labor market is characterized by its insignificant influence on the segment structure and on the components of the competitive environment and can be characterized by the inefficiency of the measures being implemented as well [13]. The ineffectiveness of state regulation of the competitive environment in the Russian labor market is forecasted until 2025.

For the "Health" component, a slightly decreasing trend is predicted in the probability that the incidence of sickness among workers will increase, and by the end of 2025 the probability of the working-age population in this competitive state will be 77%, and the decrease by 2018 will be 99%. Increasing dynamics of the probability of the working-age population staying in a healthy state are also predicted, which will amount to 22% by 2025, and the growth by 2018 will amount to 106%.

**DISCUSSION**

In the Russian labor market, the preservation and spread of the influence of imperfect competitive processes and imperfect competitive conditions are predicted for the selected features and components. In this regard, it is expected that the spread of negative socio-
economic phenomena of the domestic labor market will continue to increase, which implies the further preservation of a sustainable regional segment structure and the possibility of its change only due to interregional migration flows [9].

The development of competitive processes in social and labor relations is expected in the direction of increasing the social protection of workers, increasing the employment of workers at enterprises with private, mixed, and foreign ownership in all segments, which characterizes the positive side in the development of competition. Moreover, an increase in the employment of workers with difficult working conditions is expected, which characterizes the negative side in competition development. In this regard, the development of competitive processes is predicted under the influence of external factors, conditioned by individual competitive strategies by the behavior of subjects of the labor market.

The competitive environment development in the Russian labor market is expected in the direction of reducing the incidence of workers and increasing the likelihood of workers being in a "healthy" state, increasing the education of workers, increasing the likelihood of employment for employees with higher education and reducing the likelihood of employment of employees with secondary and primary vocational education, increasing the permanent employment of employees at the enterprise and reducing the likelihood of hiring employees and maintaining the likelihood of employee retirement. In this regard, the development of the competitive environment is predicted under the influence of external factors, the state regulation of which is of a preventive nature and is aimed at elimination of the existing negative socio-economic phenomena of the labor market and neglecting the future development of events in the labor market.

In this regard, further preservation of the competitive segment structure is predicted and the ineffectiveness of government measures in imperfect competition regulation in social and labor relations is expected with a further increase in negative socio-economic phenomena in the domestic labor market.

**CONCLUSION**

Statistical and mathematical modeling of imperfect competition and obtaining the criteria of features-indicators and components-indicators of competitive states finds its practical application in the quantitative description of competitive processes in social and labor relations and competitive conditions for the presence of subjects in the Russian labor market, with the subsequent assessment of the effectiveness of the implemented measures on the state regulation of the domestic labor market, and forecasting the development of imperfect competition in social and labor relations in the Russian labor market. The forecast of the imperfect competition development in terms of quantitative indicators showed a further increase in imperfect competition in social and labor relations.
REFERENCES


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Introduction. Most of suggested and practically used framework for assessing the agrarian sustainability include three pillars – economic, social, and environmental. In recent years a new “fourth” governance pillar of sustainability has been introduced in academic literature and appeared in official documents of governmental, international, professional and business organizations. Nevertheless, the elaboration of the approach for assessing the governance sustainability of agriculture still is at the beginning stage. This article suggests a holistic framework for assessing the new governance pillar of agrarian sustainability.

Materials and methods. A framework of new evolving interdisciplinary methodologies of Sustainable Development and the New Institutional Economics has been incorporated and a holistic system comprising of well-defined principles, criteria, indicators and reference values used for assessing governance sustainability of Bulgarian agriculture at national and (sub)sectoral (industry) levels.

Results. Multi-principle, multi-criteria and multi-indicators assessment indicates that the Overall Governance Sustainability of Bulgarian agriculture is at a “Good” but very close to the “Satisfactory” level. Besides, there is a considerable differentiation in the level of Integral Governance sustainability of different agro-industries in the country. What is more, the individual indicators with the highest and lowest sustainability values determine the “critical” factors enhancing and deterring the particular and integral Governance sustainability of evaluated agro-system.

Conclusion. Holistic assessments of governance and overall sustainability are important for improving the management of agrarian sustainability in general, and the Governance sustainability of agriculture in particular. Therefore, they are to be expended and their precision and representation increased. The later requires improvement of the precision through enlargement of surveyed farms and stakeholders, and incorporating more “objective” data from surveys, statistics, expertise of professionals in the area, etc.

INTRODUCTION

The need to include “the fourth” governance pillar in the concept for understanding and the system of measurement of sustainability is increasingly justified in academic literature [1; 2; 10; 11; etc.] as well as finds place in the official documents of different (government, international, private, etc.) organizations [12; 13; 16]. Nevertheless, the building of the system for assessing the “new” governance aspect (pillar) is still a “work in progress”.

This paper tries to fill the gap and suggests a holistic framework for assessing the governance sustainability of Bulgarian agriculture. The newly elaborated approach is applied (tested) in a first in kind large-scale study for assessing the governance sustainability of country’s agriculture at national and sectoral levels.

STUDY METHOD AND DATA

The “governance sustainability” characterizes the efficiency of the specific system of governance in an evaluated system (national, subsector, ecosystem, regional, farming enterprise, etc.). Accordingly, a “good governance” means a superior governance sustainability, while a “bad” (inefficient) governance corresponds to inferior governance sustainability.

The system of governance includes a number of district components [3] all of which have to be included in the sustainability assessment – institutional environment (“rule of the game’), market modes and mechanisms (“market order’), private modes and mechanisms (“private order’), and public modes and mechanisms (“public order’).

In order to identify the individual indicators for assessing the (governance) sustainability of Bulgarian agriculture a hierarchical system of well-determined Principles, Criteria, Indicators, and Reference Values for each Aspect (Pillar) of sustainability is elaborated*. Detailed justification of that new approach, and the ways and criteria for selection of sustainability Principles, Criteria, Indicators and Reference Values are presented in other publications by H. Bachev [4; 5] and H. Bachev et al. [8; 9].

The Governance Sustainability Principles are “universal” and relate to the multiple functions of the agriculture representing the states of the sustainability, which is to be achieved. For the “specific” contemporary conditions of Bulgarian (and European Union) agriculture following five principles related to the generic (five) mechanisms and modes of governance are identified: “Good legislative system”, “Democratic management”, “Working agrarian administration”, “Working market environment”, and “Good private practices”.

The Governance Sustainability Criteria are precise standards for each of the Principle representing a resulting state of the evaluated system when the relevant sustainability Principle is realized. For the contemporary conditions of the Bulgarian agriculture 20 Criteria for assessing diverse aspects of the governance sustainability are specified. For instance, for the Principle

* That approach is adapted from Sauvenier et al., 2005.
“Good legislative system” four Criteria are selected: “Harmonization with the European Union policies”, “Extent of the European Union policies implementation”, “Beneficiaries’ satisfaction of the European Union policies”, and “Policies effects”.

The Governance Sustainability Indicators are quantitative and qualitative variables of different types which can be assessed in the specific conditions of the evaluated agri-system allowing measurement of compliance with a particular Criterion. The set of Indicators provides a representative picture for the agrarian sustainability in all its aspects. For assessing the Governance sustainability of the Bulgarian agriculture at micro (farm) and macro (sectoral, regional, eco-system, etc.) levels a system of respectively 22 and 26 Indicators are specified. For instance, for the Criteria “Policies effects” an Indicator “Level of subsidies comparing to the average for the sector” is selected for farm level, as well as two Indicators for the aggregate (sectoral) level – “Coefficient of subsidies distribution from Pillar 1” and “Coefficient of distribution of investment support comparing to share in Net Value Added”.

The Governance Sustainability Reference Values are the desirable levels for each Indicator according to the specific conditions of the evaluated agro-system. They assist the assessment of the sustainability levels giving guidance for achieving (maintaining, improving) particular aspect and the overall agrarian sustainability. Most of the Reference Values show the level(s), at which the long-term sustainability of agrarian Governance sustainability is “guaranteed” and improved. Depending on the extent of the Reference value achievement the evaluated agro-system may be with a “high”, “good”, or “low” sustainability, or to be “unsustainable”. For instance, agrarian system with a higher than the sectoral public support (level of subsidies) is more sustainable then others as far as “Policy effects” are concerned, and vice versa.

Very often individual Indicators for each Criterion and/or different Criteria, and Principles of sustainability are with unequal, and frequently with controversial levels. That significantly hardens the overall assessment requiring a transformation into “unitless” Sustainability Index and integration of estimates. Diverse quantitative and qualitative levels for each indicator are transformed into an Index of sustainability (ISi) applying appropriate scale for each Indicator [6].

The Integral Index for a particular Criterion (SI(c)), Principle (SI(p)), and Aspect of sustainability (SI(a)), and the Integral Sustainability Index (SI(o)) are arithmetic averages of the Indices of composite Indicators, Criteria and Principles. The Integral Sustainability Index for a particular Criterion (SI(c)), Principle (SI(p)), and Aspect of sustainability (SI(a)), and the Integral Sustainability Index (SI(o)) for evaluated agro-system is calculated applying “equal weight” for each Indicator in a particular criterion, of each Criterion in a particular Principle, and each Principle in every Aspect of sustainability.

For assessing the level of Governance and Integral sustainability of agro-systems in Bulgaria the following scale, defined by the leading experts in the area are used: Index range 0.81-1 for a “High” level of sustainability; Index range 0.50-0.8 for a “Good” level of sustainability; Index range 0.26-0.49 for a “Satisfactory” level of sustainability; Index
range 0.06-0.25 for an “Unsatisfactory” level of sustainability; Index range 0-0.05 for “Non-sustainable” state.

Elaborated holistic framework for assessing the Governance sustainability of Bulgarian agriculture is tested using 2018 survey data from the managers of 104 “typical farms” of different juridical type, production specialization, and locations. The structure of surveyed farms approximately corresponds to the real structure of farms in different categories in Bulgaria. The composite (Aspect and Integral) Sustainability Index of each evaluated agri-system is calculated as an arithmetic average of the Indices of relevant farms belonging to that system.

RESULTS AND DISCUSSION

A multiple indicators assessment of the Governance sustainability level of Bulgarian agriculture indicates that the Index of Overall Sustainability is 0.51 - this represents a close to the lower (“Satisfactory”) but still a “Good” level of Governance sustainability of the sector.

Analysis of individual Indexes for the primary sustainability Principles, Criteria, and Indicators allows identifying individual components contributing to the Governance sustainability of this important sector of Bulgarian economy. For instance, the Governance sustainability of Bulgarian agriculture is relatively low because the Index for the Principle “Good Private Practices” is at “Satisfactory” level (0.46) and compromises the Pillar’s Integral sustainability (Figure 1). Moreover, Indices for “Good Legislative System” and “Democratic management” are quite low and at the border with the “Satisfactory” level - 0.5 and 0.51 accordingly. At the same time, Indices for the Principles “Working agrarian administration” (0.55) and “Working market environment” (0.54) are highest and contribute most for elevating (ensuring) the Governance Sustainability of the sector.

![Figure 1 Indices of Sustainability for Major Principles of Governance Sustainability of Bulgarian Agriculture (Source: author’s calculation)](image-url)
In depth analysis of the levels of the individual Criteria and Indicators further specifies the elements that enhance or reduce country’s agricultural Governance sustainability. For instance, the insufficient “Good Private Practices” is determined by the low “External control” (over management) (0,38), weak “Contracts enforcement” (0,49) and inferior “Informal system efficiency” (0,43) (Figure 2).

Similarly, despite that the Integral Index for “Democratic management” Principle is at a “Good” level, Indices for two criteria (policies) “Impact” and “Stakeholder participation in decision-making”) are quite low at satisfactory territory. Likewise, “Working agrarian administration” seems “Good” but “Access to administrative services” is actually very low (0,34) at “Satisfactory” sustainability level. The same is true for the “Working market environment” which is “Good” while Index for the Criteria “Resource concentration” reviles low sustainability (0,43).

**Figure 2** Indices of Sustainability for Major Criteria* of Governance Sustainability of Bulgarian Agriculture (Source: author’s calculation)

*C1-Extent of policies implementation; C2-Extent of beneficiary satisfaction of EU policies; C3-Policies effects; C4-Representation; C5-Transparency; C6-Impact; C7-Stakeholder participation in decision-making; C8-Minimum costs of using; C9-Access to administrative services; C10-Information availability; C11-Quality of services; C12-Market access; C13-Free competition; C14-Competitive allocation of public resources; C15-Resource concentration; C16-Regulation implementation; C17-External control; C18-Contracts enforcement; C19-Informal system efficiency

Individual sustainability Indicators give precise information about the specific factors determining one or another values of a particular Criteria. For example, ineffective “Access to administrative services” is determined accordingly by the insufficient “Agrarian administration efficiency” (0,31) and undeveloped “Administrative services digitalization” (0,37) (Figure 3). Likewise “Satisfactory” sustainability for the “Resource concentration” is a consequence of the (low) “Possibility for lands extension“ (0,37).
**Figure 3** Indicators* for Assessing the Governance Sustainability of Bulgarian Agriculture

(Source: survey with farm managers)

* I1-Extent of CAP implementation; I2-Extent of beneficiary satisfaction of EU policies; I3-Subsidies distribution; I4-Representativeness of state and local authorities; I5-Access to information; I6-Subsidies in Income; I7-Farmer’s participation in decision-making; I8-Acceptability of legal payments; I9-Agrarian administration efficiency; I10-Administrative services digitalization; I11-Extent of awareness; I12-Administration service costs; I13-Market access difficulties; I14-Market competition; I15-Prices negotiation possibilities; I16-Extent of competitive allocation of public resources; I17-Lands concentration; I18-Possibility for lands extension; I19-Extent of regulations implementation; I20-Management Board external control; I21-Extent of contract enforcement; I22- Level of informal system efficiency.

The low values for the Indicators help identify specific areas that require improvement through adequate changes in the institutional environment, public policy, modernization of agrarian administration, collective actions and/or management strategies. At the current stage of the development the most critical for increasing the Governance sustainability of country’s agriculture are progressive improvements in following directions: “Farmer’s participation in decision-making” (0.31), “Agrarian administration efficiency” (0.31), “Administrative services digitalization” (0.37), “Possibility for lands extension” (0.37), “Management Board external control” (0.38), “Level of informal system efficiency” (0.43), “Subsidies in Income” (0.48), “Extent of contract enforcement” (0.49), “Acceptability of legal payments” (0.5), and “Lands concentration” (0.5).

The higher levels of certain Indicators show the absolute and comparative advantages of the Bulgarian agriculture in terms of good governance and sustainable development. At the current stage of development, the most prominent of these include: “Representativeness of state and local authorities” (0.58), “Market competition” (0.6), “Extent of competitive allocation of public resources” (0.6), “Access to information” (0.65), “Extent of awareness” (0.66),
and “Administration service costs” (0.68). Nevertheless, the top value(s) of the Governance Sustainability Indicators in Bulgarian agriculture is relatively low. Therefore, there is a great potential for improvement of governance efficiency and further elevate the Governance and Overall sustainability.

The analysis of the Governance sustainability of different sub-sectors of Bulgarian agriculture shows that there is a great variation in the sustainability level. The highest (“Good”) level of Governance sustainability is demonstrated in the “Mix livestock” production (0.59), followed by the “Vegetables, flowers, mushrooms” and “Mix crop-livestock” sectors (0.53) (Figure 4). Therefore, these three subsectors contribute to greatest extent for improving (maintaining) the overall Governance sustainability of Bulgarian agriculture.

On the other hand, the level of Governance sustainability in the “Grazing livestock” (0.52), “Permanent crops” (0.5), and “Beekeeping” (0.5) is close to the average in the sector. Finally, in some major subsectors like “Field crops” (0.47) and “Mix crops” (0.49), the level of the Governance sustainability is “Satisfactory” and far below the general one. This means that the later subsectors decrease in a biggest degree the Integral Governance sustainability of country’s agriculture.

The different sub-sectors of Bulgarian agriculture are characterized by significant variation of the levels of Indices of the main Principles of the Governance sustainability (Figure 5). For instance, the Principle “Good legislative system” is the best realized in the “Vegetables, flowers, mushrooms” production (0.58) and “Mix-livestock” operations (0.57), and the worst

![Figure 4 Governance Sustainability in Different Sub-sectors of Bulgarian Agriculture](source: survey with farm managers)
in “Field crops” and “Grazing livestock” sub-sectors (0.47). The Principle of “Democratic management” is the best applied in the “Mix livestock” production (0.62), while it is not “Satisfactory” in the “Beekeeping” (0.46), and “Mix crops” and “Mix crop-livestock” sub-sectors (0.49). The interior and superior levels of the Governance sustainability for particular Principles show the directions for improving the Governance sustainability in the relevant sub-sectors of agriculture.

The Principle “Working agrarian administration” is effectively applied in “Beekeeping” (0.57), and “Grazing livestock” and “Mix crop-livestock” (0.56), while agrarian administration does not “work” well in the sector of “Field crops” (0.44). The sustainability for the Principle “Working market environment” is the highest in “Mix livestock” (0.64), “Beekeeping” (0.63) and “Mix crop-livestock” (0.58). Simultaneously, market mechanisms are not working very well for the “Field crops” producers (0.5). Finally, “Good private practices” are the best implemented in the subsector of “Mix livestock” (0.62) and “Mix crop-livestock” (0.5), while in all other subsectors they are applied only “Satisfactorily”, being particularly inferior in the “Beekeeping” (0.37) and “Field crops” (0.41).

**Figure 5** Indices of the Principles of Governance Sustainability in Major Sub-sectors of Bulgarian agriculture (Source: survey with farm managers)

Further analysis of the sustainability level for the individual Indicators allows “complete” unpacking the “critical” factors enhancing and/or decreasing the Governance sustainability of each sub-sector. Our assessment has found out that different agricultural sub-sectors in Bulgaria are characterized by a significant variation in the levels of individual Governance Sustainability Indicators (Figure 6).
CONCLUSIONS

Multiple Principles, Criteria and Indicators assessment of the Governance sustainability of Bulgarian agriculture indicates that the Overall Sustainability is at a “Good” but very close to the “Satisfactory” level. Besides, there is a considerable differentiation in the level of Integral Governance sustainability of different agricultural sub-sectors. What is more, the individual indicators with the highest and lowest sustainability values determine the “critical” factors enhancing and deterring the particular and integral Governance sustainability of evaluated agro-system. Having in mind the importance of holistic assessments of this kind for improving the agrarian sustainability in general, and the Governance sustainability of agriculture in particular, they are to be expended and their precision and representation increased. The later requires improvement of the precision through enlargement of surveyed farms and stakeholders, and incorporating more “objective” data from surveys, statistics, expertise of professionals in the area, etc.

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Anastasia V. Pogorevich

Research of tools influencing the engagement of potential customers in social media as one of the ways to improve the effectiveness of SMM in organisations through the example of the Instagram community @mebel_rummix

KEYWORDS
social media;
social media marketing;
Internet marketing;
SMM strategy;
content plan;
engagement index;
social media audience

ABSTRACT

Over the past ten years, an increasing number of organisations have gone beyond "personal pages" and viewed social media as a promising channel of communication with customers, partners, and employees. The attractiveness of social media marketing is primarily due to its accessibility for small and medium-sized businesses, which makes it possible to compete with large companies in informing a potential audience about goods and services. However, business promotion in social media is not always successful due to the low reach and level of audience involvement.

It is assumed that over the history of social media, a set of engagement management tools has been formed that can be structured, described, and proposed for use as a method for improving the effectiveness of social media marketing organisations.

Empirical and theoretical research methods were used to test the suggested hypothesis: 1) analysis of literature and Internet sources; 2) synthesis of the received information; 3) an experiment to evaluate the results of the practical application of several engagement management tools at the same time.

Based on the research data, a classification of engagement management tools is proposed for the first time, including six groups: analytical, visual, content, technical, advertising, and reputational. The effectiveness of using analytical, visual, content, and advertising tools has been experimentally proven and confirmed by statistics from the social media analytics services Popsters and LiveDune through the example of the @mebel_rummix community. The main result of the research is a generalisation of existing engagement management tools in practice into a single controlled methodological approach to improve the effectiveness of social media marketing organisations.

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INTRODUCTION

S
ocial media cover a huge number of people and are synonymous with thematic portals and search engines on the Internet: in social media, people meet, communicate, read news, books, and articles, find useful information, watch movies, listen to music, and buy goods and services [2]. Since the main marketing task of any company is to be where its consumers are, it is natural that such a powerful resource could not be ignored by organisations [19, p. 51]. Besides, SMM (social media marketing) is cost-effective, and this makes it accessible to start-up entrepreneurs and small businesses [24].

The main difference between social media and other online resources according to O’Reilly, Ananda et al. is a fundamentally new form of Internet communication, which implies the exchange of user content in a multilateral communication mode [20, p. 171]. The feature of adding and changing content by the simultaneous efforts of many users makes social media a unique resource in terms of the ability to interact with audiences (customers, partners, and employees of the company) in a single space-time field, and also provides ample opportunities for involving reference groups in the company’s promotion activities.

Although social media are widely used in promoting companies, scientific research in this area is scarce. Organisations have to develop and implement SMM strategies based on intuition [20]. Stelzner in the report on his annual Social Media Examiner study says that 91% of SMM specialists from the USA, Canada, Great Britain, Australia, South Africa, and other countries are constantly searching for an answer to the question of how to increase engagement in social media, while 89% want to have information about the best SMM strategies and doubt the correctness of their decisions [24, pp. 6, 45]. Trial and error are the main reason why 80% of companies’ social media pages are useless [8].

Well-established statistical indicators of the effectiveness of communities in social media are reach and engagement [13]. If the reach rate* is relatively simple from the point of view of management and depends on the number of subscribers, then engagement is a complex criterion associated with the users’ subjective assessment, expressed in the number of audience responses to publications (likes**, reposts***, comments, messages, and information saves) [16].

A significant contribution to the study of social media audience engagement was made by Pentina et al. [21; 22]. Researchers compared complex motivational combinations and behaviour of luxury brand buyers in social media and concluded that it was very important to create special inspirational content, taking into account the audience’s behavioural characteristics, as well as


** Like is a button for approving what a person likes in social media on the Internet. Usually it is in the form of a heart or a thumb up. Source: Mingaev, M. (2019). Answer to Users’ Questions. Retrieved July 25, 2020, from https://yandex.ru/q/question/society/chto_takoe_laik_817b2c07

*** Repost is a quick way to share an article or other note in social media. Such a function makes it possible to instantly copy information and publish it on one’s page or send it to friends. By reposting, one shares information in its original form and leaves a link to the source. Source: Komarkova, I. (2020). Answer to Users’ Questions. Retrieved July 23, 2020, from https://yandex.ru/q/question/computers/chto_takoe_repost_i_kak_ego_sdelat_c86a306f/
to attract active users – opinion leaders in SMM promotion; it is also necessary to work especially with them. However, these are not all of the existing engagement management tools.

Ananda et al. distinguish three main categories of SMM tools: Representation, Engagement, and Listening-in, which, according to the context, can be translated as image, involvement, and tracking [20]. The image includes the presentation of the company in social media (profile, information about the company and its products); engagement is marketing activities in social media aimed at interacting with customers, and tracking refers to research and analysis of the obtained data. The authors provide only a general understanding of the tools, which requires further detailing and development of a procedure for application in practice.

Thus, the engagement rate is of particular scientific interest from the point of view of clarifying the set of tools from the SMM arsenal that influence its positive change. Social media’s ten-year history has accumulated industry experience in promoting companies, but this experience is fragmented and requires structuring. The purpose of the article is to identify existing engagement management tools in social media and test their effectiveness in practice.

**LITERATURE ANALYSIS**

*Engagement as a criterion for effective promotion in social media*

Kaladzhyan [8] identifies two components of the ineffectiveness of SMM organisations: low reach of the target audience and a low degree of involvement.

The authors consider that a brief and precise definition of engagement in social media is given in the blog of the University of Internet Professions "Netology" [3]:

**Engagement** is the sum of subscribers’ interactions with one’s posts. Interactions include likes, comments, and reposts.

The notion of engagement is closely related to such features of social media as [1, p. 25]:
1) self-presentation through personal pages;
2) continuous communication through internal messages and comments;
3) bringing people together in communities.

The features indicated in paragraphs No. 2, 3 imply the involvement of the audience in the process of creating messages (content*). In this way, producers of the content of the messages enter into relations with consumers of these messages, who themselves are involved in its further production, when each reader/subscriber of the blog can perform the functions of an author, acting as a commentator, reporter, photojournalist, and/or editor of this service [15]. The more people are involved in community life (put likes, write comments, repost, and save information), the more successful it is.

The importance of engagement lies in the algorithms of social media, which do not benefit from showing posts to all subscribers of the community.

---

* Content is absolutely any information-significant or meaningful content of an information resource or website.
The average audience reach statistics by a publication does not exceed 20% of all subscribers [10]. However, the more responses a post has (likes, comments, reposts, and saves), the more likely it is that the network will "pick up" it in the feed and show it to a larger number of users.

Based on all of the above, one of the main goals of SMM is to create a high level of audience engagement.

Analysis of SMM tools for managing the engagement level and their classification

In the authors’ view, in the matter of identifying a set of engagement management tools, it is reasonable to rely on the opinion of specialists of large analytics and marketing services in the digital sphere, as well as specialists of training centres and online courses of digital professions and digital agencies, whose practical activities form the patterns that should form the basis of the SMM methodology.

Below is a description of tools for increasing the engagement level from seven sources for further generalisation and classification (Table 1):

Table 1

<table>
<thead>
<tr>
<th>Sub-item number</th>
<th>Name of the source</th>
<th>Tools for increasing the engagement level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supa service</td>
<td>• using the &quot;smart feed&quot; algorithm – since the news feed in social media gives greater reach to those posts that have more activities (likes, reposts, comments), it is necessary to provoke activity with questions, surveys, and communication; • working with &quot;brand lawyers&quot; – people who actively share their opinions about the brand (product/service) [11].</td>
</tr>
<tr>
<td>2</td>
<td>ActiveTraffic service</td>
<td>• analytical work – studying the behaviour of social media users at a certain time helps to increase loyalty – it is necessary to make up a schedule that displays the hours of greatest activity, and plan publications according to it; • active communication and feedback – prompt responses and likes to positive and negative comments increase audience loyalty; • work on the content quality – easy submission of content with an appeal to the reader or viewer will have more weight; it is necessary to keep in mind the quality of work with content: infographics, convenient fonts, and high-quality images will not go unnoticed; • focus on personal brand – the audience is much more loyal to the company if it literally has a face; business account owners do not need to hide behind names and logos – direct contact with the consumer will attract the audience; • relevance and following trends – the use of newsbreaks and memes* within the community always causes a positive reaction from subscribers, but it is necessary to use this tool wisely, without crossing certain boundaries [5].</td>
</tr>
</tbody>
</table>

*Meme is a unit of culturally relevant information. A meme is any idea, symbol, manner, or mode of action that is consciously or unconsciously transmitted from person to person through speech, writing, video, rituals, gestures, and so on. Source: Meme. (n.d.). Retrieved August 8, 2020, from https://ru.wikipedia.org/wiki/Мем
<table>
<thead>
<tr>
<th>3</th>
<th><strong>CallTouch service</strong> is designed for end-to-end analytics (combining data from advertising platforms and CRM systems with data from the company’s website), call tracking (tracking the sources of incoming calls to the company), and ad management.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td><strong>SMMPlanner service</strong> is intended for organising planned deferred placement of messages (posts) in social media.</td>
</tr>
<tr>
<td>5</td>
<td><strong>“Lead generation”</strong> is a centre for integrated training of Internet promotion (lead generation)</td>
</tr>
</tbody>
</table>

- **optimal posting time** – studying the heat map of the time of public visits and using it to place publications on certain days and hours;
- **using graphics** – it dilutes the text and attracts attention;
- **communication** – subscribers value communication and answers to questions [16].

- **conducting sweepstakes, quizzes, and mini-marathons** – means subscribing to an account, commenting, and likes (the more expensive the prize, the better the result);
- **stimulating discussions** – asking specific simple questions at the end of the post that stimulate discussion; creating chats for publications at a certain time with a suggestion of a discussion topic;
- **contests with user content** – a contest of any audience activity, the results of which can be placed in the form of photos, videos, audio recordings, and text with the possibility of voting;
- **interactive content** – creating and hosting mini-games (for example, continue the story, write your name one letter at a time in the comments, describe your feelings with “Emoji” icons, etc.);
- **useful content** – posts with recipes, descriptions of the technology of making something. Such content builds loyalty, creates a reputation as an expert, and increases engagement, as the audience retains it;
- **conducting surveys** – using this technique, one can not only increase engagement but also find out the audience’s opinion about the company’s goods/services [14].

- **surveys that require detailed responses** – provoke users to leave their opinions;
- **a discussion of problematic topics** – a discussion of vital questions, current news, pain points – all this encourages people to speak out, which is a reason to start a discussion;
- **using the mention function** – encouraging discussion of a post by inviting other people to join the discussion using the mention function. To do this, enter @[user id] and a message with an offer to join the discussion in the comments to the post. Users who are added to a conversation receive a notification in the responses “tab”;
- **emotional posts** are posts with maximum sincerity and openness of emotions: joy, indignation, anger, pain, gratitude. Such messages evoke a response from the audience;
- **provocation** – the statement of a sharp categorical opinion on an urgent problematic topic;
- **interactive posts** – tests, games, riddles, gifts for activity [9].
### Webline Promotion Digital Agency

- **paid promotion of publications** – advertising of publications with payment for a social network;
- **clearing bots** – removing bots from an account by manual unsubscribing;
- **involving techniques**:
  1. calls (like, comment, etc.);
  2. short surveys;
  3. questions with a long answer;
  4. roll calls (for example, who is from Krasnoyarsk – put "+" in the comments);
  5. puzzles;
  6. surveys-riddles;
  7. like-times (contests with a call to put likes) with the condition of receiving a discount or prize;
  8. games;
  9. raffles [10].

### CheckROI

- **identification and study of the target audience** – drawing up a portrait of the target audience; finding out preferences, interests, and behaviour description;
- **determining the correct time and format for publication** – the intersection of the parameters "time" (morning/afternoon/evening) and the type of information (entertainment/serious) is determined;
- **the design of the post** – visual design, text, structure;
- **providing a jump in activity**: sweepstakes, contests, publishing user content (photos, videos, audio recordings with text both in a competitive format and for the purpose of telling about one’s subscribers) [7].

In the authors’ opinion, all the tools for increasing engagement listed in Table 1 can be united into the following six groups, depending on the method and area of impact:

1. **analytical**: analysis of the target audience to identify subscribers’ interests for creating content, analysis of the time and the best time intervals for posting publications, analysis of competitors’ actions;
2. **visual**: design of categories and posts (style, colour scheme, quality of design of the photo and video materials, infographics), text design and structure;
3. **content** (used when creating content and interacting with the audience, except for the visual ones): questions to the audience, surveys, posts-calls to action (discussion, likes, reposts, saves), provocative posts, emotional posts, useful posts, games, sweepstakes, contests, riddles; mentions of subscribers to attract them to the discussion; the tone of communication (friendly, official, provocative, etc.), feedback;
4. **technical**: clearing one’s account from bots;
5. **advertising**: paid promotion of publications through advertising systems of social media;
6. **reputational**: maintaining the company’s community on behalf of the owner (suitable for small and medium-sized businesses), working with "brand lawyers" to encourage them to actively take part in community life.
MATERIALS AND METHODS

Example of an SMM strategy for the Instagram community of the furniture company "Rummix" – @mebel_rummix

Instagram account (community) help
1. Name: @mebel_rummix (TM Rummix, LLC PC Komandor, Krasnoyarsk).
2. Project start: June 11, 2015

According to the Popsters service’s data, there is a low level of audience engagement throughout the entire life of the account: for the period of June 11, 2015 – May 19, 2020 – an average of 13 likes and 1 comment per post (Fig. 1). The average Engagement Rates* per day and per post are also very low, less than one.

Figure 1 "Rummix" – @mebel_rummix account statistics based on Popsters service data

<table>
<thead>
<tr>
<th>RU</th>
<th>EN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Мебельная фабрика 11.06.2015-19.05.2020</td>
<td>Furniture factory 11.06.2015-19.05.2020</td>
</tr>
<tr>
<td>Всего лайков 22,147</td>
<td>Total likes 22,147</td>
</tr>
<tr>
<td>Всего комментариев 868</td>
<td>Total comments 868</td>
</tr>
<tr>
<td>Всего записей 1650</td>
<td>Total records 1650</td>
</tr>
<tr>
<td>Подписчиков 2079</td>
<td>Subscribers 2079</td>
</tr>
<tr>
<td>ER day, %; 0.614%</td>
<td>ER day, %; 0.614%</td>
</tr>
<tr>
<td>LR, %; 0.646%</td>
<td>LR, %; 0.646%</td>
</tr>
<tr>
<td>TR, %; 0.025%</td>
<td>TR, %; 0.025%</td>
</tr>
<tr>
<td>Лайков в среднем; 13</td>
<td>Likes on average; 13</td>
</tr>
<tr>
<td>Комментариев в среднем; 1</td>
<td>Comments on average; 1</td>
</tr>
<tr>
<td>Все расчеты сделаны по вашему часовому поясу</td>
<td>All calculations have been made according to your time zone</td>
</tr>
</tbody>
</table>

* ER (Engagement Rate) is the ratio of the average number of all interactions in posts to the number of subscribers [20]. ER = (reactions) / posts / subscribers x 100. When calculating the ER for an individual post, the user reaction to this post will be taken into account; when calculating the ER for a community, the user reaction to all posts for the specified time period is taken into account. For example, during the selected period, 10 posts were published that received 100 likes and 20 comments. On average, one will get 12 interactions per post: (100 + 20) / 10 = 12. The account has 300 subscribers, accordingly, ER = 12 / 300 x 100 = 4%. 
Target audience:

1. **Potential and real buyers. B2C audience:** married men and women with children aged 25 to 45 years old. Reasons for purchasing furniture: first purchase of housing, change of housing, the appearance of children, interior renovation. **B2B audience:** interior designers.

2. **Employees of the holding.** Another significant audience is the company’s employees. As carriers of information about the company, employees contribute to the formation of a good reputation.

**The purposes of account management for the furniture company Rummix:**

- creating demand and "heating" the audience;
- finding potential buyers in the selection field;
- collecting leads (potential customers who go to the company’s website and turn to Direct);
- formation of the company’s image in the medium term and reputation – in the long term;
- solution of HR tasks (interaction with employees of the enterprise, cohesion, formation of corporate culture).

To achieve these goals, the authors worked with the following groups of tools: 1) updating the packaging (design) of the account – **visual tools** – new categories were developed and designed; two-colour marking was used: green for expert content, Burgundy branded for everything else; the content design focuses on photos of people; in the graphic solution, uniformity and simplicity are preferred;

2) development and implementation of a content strategy to increase engagement – **content and analytical tools** – in the content strategy, 65% was given to content aimed at engagement, loyalty, and expert information, and only 35% to commercial content;

3) advertising campaign for individual publications – **advertising tools** – during the project, three publications were promoted through the Instagram advertising system.

To test the chosen strategy, a period of no more than one calendar month was set aside, during which the Engagement Rate Reach* (an indicator that does not depend on the presence of bots among subscribers) should have been returned to normal.

**RESULTS**

As a result of the work on the project, the following results were obtained.

The 109-person increase in subscribers was primarily due to an advertising campaign on the Facebook advertising network, and this is equal to the increase in subscribers that occurred in the community from mid-December 2019 until mid-May 2020. The engagement index also showed a significant increase. Below are statistical indicators of results based on data from the LiveDune analytics service for the period of May 20, 2020 – June 13, 2020 (Table 2). The engagement rate reach has run to the norm. The engagement rate has almost doubled.

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* ERReach (Engagement Rate Reach) is calculated similar to ER, but as a ratio to the average number of posts’ reach [20]: ERReach = (reactions) / posts / reach * 100.
**Table 2**

Dynamics of @mebel_rummix community indicators. Comparison of two periods: status on May 20, 2020, and on June 13, 2020 (24 days after starting work on the project)

<table>
<thead>
<tr>
<th>Sub-item number</th>
<th>Indicators</th>
<th>The average value in the Product/Service category (average of 30 days). Data as of June 13, 2020</th>
<th>Account @mebel_rummix as of May 20, 2020 (start of the work on the project)</th>
<th>Status</th>
<th>Goals (until August 20, 2020)</th>
<th>Account @mebel_rummix as of June 13, 2020 (24 days after starting work on the project)</th>
<th>Change/Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Subscribers</td>
<td>6,720</td>
<td>1,981</td>
<td>below normal</td>
<td>2,500</td>
<td>2,090</td>
<td>+109</td>
</tr>
<tr>
<td>2</td>
<td>Engagement rate</td>
<td>5.79%</td>
<td>1.5%</td>
<td>below normal</td>
<td>up to the average value</td>
<td>2.97%</td>
<td>+1.47%</td>
</tr>
<tr>
<td>3</td>
<td>Engagement rate reach</td>
<td>17.75%</td>
<td>9.5%</td>
<td>below normal</td>
<td>up to the average value</td>
<td>17.89%</td>
<td>+8.39% normal</td>
</tr>
<tr>
<td>4</td>
<td>Reach rate</td>
<td>43.41%</td>
<td>14.6%</td>
<td>below normal</td>
<td>up to the average value</td>
<td>16.02%</td>
<td>+1.42%</td>
</tr>
<tr>
<td>5</td>
<td>Posts per week</td>
<td>3-4</td>
<td>6-7</td>
<td>above normal</td>
<td>support</td>
<td>7-8</td>
<td>above normal</td>
</tr>
<tr>
<td>6</td>
<td>Stories per day</td>
<td>2-3</td>
<td>1-2</td>
<td>below normal</td>
<td>2-3</td>
<td>3-4</td>
<td>above normal</td>
</tr>
<tr>
<td>7</td>
<td>Searches of Stories</td>
<td>28.79%</td>
<td>37.9%</td>
<td>above normal</td>
<td>support</td>
<td>34.68%</td>
<td>above normal</td>
</tr>
</tbody>
</table>

**DISCUSSION**

During 24 days of working on the project, Instagram @mebel_rummix successfully implemented a strategy to increase the engagement of the existing audience of subscribers. More than a **two-fold increase in likes** on average per post and more than a **four-fold increase in comments** on average per post (according to the Popsters service for the period of May 20, 2020 – June 13, 2020) were obtained. The number of subscribers was increased by 109; the total number was 2,090 people (as of June 13, 2020), more than 50% of which were received through an advertising campaign on Facebook. The average cost per subscriber was 46.7 roubles, including VAT, which is within the range of the average cost of a subscriber on Instagram (30–60 roubles).

The results of this work were recorded by the analytical services Popsters and LiveDune. The obtained results indicate the correctness of the chosen strategy, which consists in:

- changing the packaging design and categories;
- development and implementation of a content plan, including 65% of publications aimed at engaging the audience and increasing loyalty;
- changing the tone of communication (switching to informal "you"), involving subscribers in an active dialogue;
introduction of the non-commercial categories "Our people abroad" and "Cadres decide everything!", which are of interest to both the company’s employees and the external audience;

• changing the form for submitting information about projects: specifying the designer, cost, size, and key benefits;

• placement of expert information on decor and interior design, as well as on furniture care;

• activation of work with Stories: creating separate content, increasing the frequency of outputs to 3–4 per day;

• using special services for video design and processing (Canva, Designer, Kinemaster, Inshot, Pixaloop) for posting;

• conducting an advertising campaign on Instagram and Facebook advertising networks aimed at increasing engagement and the number of subscribers.

CONCLUSIONS

The article examines the existing scientific views of social media engagement. Lack of a unified methodological approach to engagement management is revealed, as well as lack of a description of the set of all tools for increasing engagement. A hypothesis is put forward about the existence of such a set of tools in practice, and the task is to identify and generalise it.

Thus, the tools used in practice to increase engagement were identified and generalised, and their classification into the following groups was proposed, depending on the method and area of impact: analytical, visual, content, technical, advertising, and reputational. An experimental test of the effectiveness of some tools was performed through the example of the Instagram community @mebel_rummix.

The results of the implementation of the SMM strategy for @mebel_rummix, which was aimed at increasing audience engagement, are described. The strategy included the following elements: 1) change in the design of the community packaging and categories, 2) creation of a content plan aimed at engaging the audience and filling it with publications that meet the goal; 3) paid promotion of individual posts. The results of these efforts, recorded by the Popsters and LiveDune analytics services, demonstrated the effectiveness of visual, content, analytical, and advertising engagement management tools in practice. According to the results of the conducted experiment, the engagement rate reach increased from 9.5% to 17.89% and reached the average value accepted for the "Product/Service" category on Instagram; the engagement rate almost doubled.
REFERENCES


INFORMATION ABOUT THE AUTHOR

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Online marketplace: student consumer strategies

Introduction. The Internet is becoming a part of everyday life; it is in this space that communication, purchases, and payment for various services are carried out. Young people are the most dynamic social group that has long mastered the Internet market with its advantages, namely, comparing prices, book products, and buy at discounts.

Materials and methods. The quantitative data collection method is used for studying young people’s consumer strategies in the Internet market and understand the prevalence of online shopping practices. This task led to the application of the survey and the analysis of the data obtained. Comprehension of values and behavioral practices in consumer groups (generally active experts, partially active experts, passive experts) is based on a qualitative strategy in the form of semi-formalized interviews.

Research results, their discussion. The factors of the popularity of the Internet market among students have been determined: activity on the Internet and social networks, attractive prices for goods, an expanded range of goods; it was found that such categories of goods as tickets, music, software, and food delivery are frequently purchased via the Internet; it was revealed that the frequency of online purchases varies from “once every six months” to “once every 1-3 months”, while a purchase does not always accompany a visit to an online store. The survey showed that the most preferable for young people are such services, Internet catalogs, the possibility of placing a preliminary order, booking goods with subsequent self-pickup.

Conclusions. The study made it possible to establish a trend towards increasing online purchases among students in the Internet market as a consumer platform with new consumption practices.
INTRODUCTION

On the one hand, consumer behavior always reflects the specific historical conditions for the development of markets and the economy as a whole. On the other hand, consumer behavior reflects certain values and lifestyle standards of certain groups. The main consumer groups are usually identified based on socio-economic strata. However, the modern market is strengthening the segmentation by gender and age. Thus, the consumer practices of student youth are becoming the focus of attention of modern companies. It is student youth who are ready to experiment and learn new strategies and practices. Students are active in virtual reality, which daily fills life with new information presented on the Internet by text, digital, audio-video materials. For today's youth, access to the Internet space on Internet market platforms is seen as a manifestation of freedom of choice. The result of the active activity of Internet users is the emergence of new trends, fashion trends. So, the fashion for street style in clothes was set by young artists, designers, and photographers to popularize an active lifestyle on the Internet. The online marketplace is producing new consumption strategies, saving and responding to offers from the online marketplace. This circumstance determines the relevance of studying the Internet market as a market with new student consumer behavior strategies. According to experts, today, the Asia-Pacific region is the leader in online sales [3]. The global nature of trade can both catalyze the development of the Internet market and become a significant barrier; for example, it is difficult to regulate Internet transactions with the norms adopted in the territory of one country (in particular, goods allowed for sale, for example, drugs and methods of their delivery). At present, there is a process of unification of the norms and regulations of the global Internet trade based on common world principles.

MATERIALS AND RESEARCH METHODS

The transition to the Internet space does not reject the basic framework of analysis. It is customary in the sociological tradition to analyze the market as a social institution. Using this approach to understanding the structure of the market, one can comprehend the content of connections, define supra-individual formations, including a multi-level system (states, firms, rules, laws, and practices), and interaction between social groups. Within the framework of the economic and sociological approach, the market is defined as a system of regular mutually beneficial exchange of goods. Participants' actions are regulated (in addition to price policy) by their structural ties, institutional forms, and cultural constructions. Thus, social relations reproduced by market participants come to the fore. The collection of empirical material was carried out using survey methods and semi-formalized interviews. Questionnaire and online surveys were conducted in 2017.
The object of the research was the student youth of the city of Yekaterinburg. The sample of the study consisted of 150 people selected based on a quota, with quotas being carried out according to the characteristics of "gender", "course of study", "full-time education", "residence in the city of Yekaterinburg". The "snowball" method was used as a selection method. The data array was processed using the Vortex program. Through a quantitative survey and analysis of the literature, four groups of consumer strategies were identified. Moreover, during the research's qualitative stage, the emphasis was placed on the most common types – "generally active" and "partially active". Nine semi-formalized interviews were conducted with students with different levels of involvement in Internet consumption (Table 1).

Table 1

<table>
<thead>
<tr>
<th>Typology of consumer strategies</th>
<th>Representation in the study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qualitative research</td>
</tr>
<tr>
<td>Specialists</td>
<td>7,4 %</td>
</tr>
<tr>
<td>Generally active</td>
<td>36 %</td>
</tr>
<tr>
<td>Partially active</td>
<td>46,6 %</td>
</tr>
<tr>
<td>Passive</td>
<td>10 %</td>
</tr>
</tbody>
</table>

To check the study's conclusions' adequacy, we turned to the secondary data of Data Insight (2014–2020), analytical articles, and expert opinions, which are in the public domain.

ANALYSIS OF THE LITERATURE

Globalization and the world economy are inconceivable without internet commerce. Seetharaman A., Niranjan I., Saravanan A. S., Balaji D. A. believe that e-commerce is one of the most types of activities carried out via the Internet popularity among consumers of goods and services [4, p. 397–412]. The set of institutions that form the market is a set of certain rules developed common understandings and interpretations, a collective behavior system. Rules and regulations both restrict and stimulate the actions of market participants. Institutions eliminate the costs of choosing an option in an ordinary market situation, offering ready-made action schemes. They allow predicting other people's actions according to common sense and market participants' natural attitude [1]. In the study of Azar S., Khan S. N., Shavaid J., it is substantiated that the online market allows making trade transactions without any geographic restrictions [5, p. 133–144]. At the same time, Azar S., Khan S. N., Shavaid J. note that although online commerce has many advantages, buyers often show dissatisfaction with commercial transactions via the Internet. The main thing on which buyers' dissatisfaction with trade transactions via the Internet is that the goods cannot be tried on to see how it happens in traditional trade, in real stores. The research has shown that detailed acquaintance with a
product on the Internet market positively affects the degree of customer satisfaction. Factors that positively impact the attitude to trade via the Internet are also the website’s design with detailed information about the product, methods of purchasing it, pricing, customer service, and logistics services. Azar S., Khan S. N., Shavaid J. note that the number of people making online purchases is rapidly increasing [5, p. 133–144]. In the work of Melissa G. Ocepek, the information behavior of consumers, the connection of the senses as sources of information with the choice of goods, in particular food products, has been investigated [6, p. 371–394]. The researcher notes that buyers rely on sight, taste, touch, smell [6, p. 371–394] in the process of searching and choosing products.

Consequently, in the Internet market, buyers search only for food products that they understand, which most often makes up their consumer basket. The study focuses on substantiating the sense organs, non-textual, verbal sources of information in a grocery shopper’s behavioral strategy in grocery stores. Online shopping behavior is studied by El-Deeb S., Hamed S., with an emphasis on the motives and perceived risks when making online purchases [7, p. 31–55]. It has been established that the factors of success in electronic retail are utilitarian and hedonistic motives, which, at the same time, serve as the basis for the perceived risks of online shopping [7, p. 31–55]. According to expert estimates, in the next 3–5 years, the greatest growth potential for online commerce will be characteristic of large regional centers, cities with a population of over 1 million people. According to the Data Insight agency, the average growth in online commerce in the period from 2011 to 2019 was 28% (from 235 billion rubles to 1.72 trillion, including VAT) [8]. In 2020, regions in Russia account for up to 80% of Internet buyers and about 65% of the Internet commerce market [9]. According to the rating also compiled by the Data Insight agency, in 2017, the largest online stores (TOP-15) were online stores operating in five key areas: hypermarkets (department stores), electronics and appliances, clothing, footwear, and accessories, goods for home and renovation and food. Besides, online sales platforms and divisions of large offline stores are becoming the leaders of the rating.

It should be noted that Internet retailers are also strengthening their physical presence by developing networks of both points of issue and full-format offline stores [10]. The dynamics of the development of the Internet market is explained by the low barrier to entry into the Internet market (up to a complete lack of investment), low costs, which allows offering consumers goods at more affordable prices, while the formats of discount stores and sales stores are becoming popular especially in conditions of decrease in real incomes of the population. Traditional sellers have contributed to the development of the market by actively developing less expensive electronic sales methods.

The e-commerce market will continue to develop. This process is because users of online stores can quickly compare sellers of interest (for example, through aggregators/marketplaces). This process serves as a catalyst for regular promotions by both electronic (online) and traditional (offline) merchants. Traditional sellers are also, following the global trend, developing their electronic divisions (for example, the French hypermarket "Auchan")
to maintain competitiveness in the digital reality. At the same time, new market entities are continually appearing, mainly small and medium-sized ones, since the barriers to entering the market are quite low. The Internet is gradually becoming a key operating environment, and merchants who expect to reach the largest number of buyers will not afford to abandon e-commerce. It should be noted that the modern realities of 2020 and the pandemic have made a change in the development of online commerce, acting as a growth factor.

**CHANGE IN FORECAST DUE TO THE PANDEMIC**

![Figure 1](image.png)

In 2020, J. Scanlon conducted a study on the impact of COVID-19 threats on consumers' portfolio of educational services in the field of higher and secondary vocational education [11]. The conclusion is made about the increased demand for educational services provided remotely using distance technologies.

R. Misra, R. Mahajan, N. Singh believe that the electronic trading platform as an advanced technological infrastructure provides prospects and additional benefits, for example, for sellers of clothing and home decor [12, p. 1–41]. The study identified sellers' problems and expectations from the introduction of the electronic market, showing the advantages of electronic marketplaces for sellers [12, p. 1–41].

The Internet is a channel of direct influence on today's youth's value orientations, which are characterized by consumption attitudes, which can not affect the amount of direct or indirect advertising on the Internet. In this context, the Internet, particularly various kinds of advertising information within the Internet, "becomes a kind of demonstration material, a world of ideas and values, since it speaks not only about goods, but exposes typical situations of social interaction" [13]. Thus, according to analysts from the Public Opinion Fund, online advertising and television positions have become equal; during the current year, the Internet will bypass television in terms of the amount of budget spending on advertising [14]. The same position in the research of the study of the audience "Google". For example, online videos are becoming for the modern generation of "visuals" not so much entertainment as
quick answers to questions: young people use YouTube to find relevant answers that arise in various situations. "Considering this in their advertising campaigns, advertisers can come to the rescue at key moments where their audience is looking for information" [15]. It is worth noting that it is in the space of virtual social networks that advertising begins to live a new life, and advertising blocks separating information are replaced by personalized advertising-integration tied to a certain Internet authority’s personality.

We agree that the practices inherent in online commerce indicate that this is a serious business in which a wide range of consumers is involved [16, p. 214–232]. The Internet market sets the main trends in the development of consumer requests, actively developing advertising while creating the necessary conditions for the most convenient and comfortable transactions of any kind, thanks to which the Internet is gaining more and more recognition among students.

**RESEARCH RESULTS AND DISCUSSION**

As a set of cultural constructions, the market is immersed in a social context. It appears as a set of knowledge, skills, skills, established economic norms, values, and symbols, used meanings and meanings, combining cognitive, value, and symbolic aspects. All this is reflected in the positioning of a product in the modern market: any product carries a symbolic meaning beyond the physical properties of the offered product, its direct utility. It absorbs a set of images and meanings that the consumer recognizes using cultural codes known to him. Thus, in the production and sale of products and services, the market becomes a means of production and dissemination of norms and values, the approval of status hierarchies, an arena of symbolic struggle for the interpretation of meanings [2].

In all the fullness of these connections, the market space becomes a kind of conductor that reproduces processes that cover all spheres of society. In this regard, the Internet is becoming the most relevant and convenient form of organizing market space in modern society. The Internet market (Internet market) is a collection of all operations related to trading on the Internet: retail and wholesale purchase/sale of goods and services through an electronic network (online stores and other resources). The main formats for organizing Internet sites in the Russian segment, focused on the work of companies with individuals, are [17]:

- aggregator sites (specialized intermediary portals that automatically collect and process information from different suppliers in certain product areas);
- online stores (websites that post information about goods/services available for ordering and payment via the Internet);
- catalogs (showcases) in social networks (an online catalog of goods/services placed in an account or group in social networks to organize and promote sales of goods/services with the possibility of direct purchase and payment. Currently, social networks offer various tools for organizing e-business).
The analysis of the sources made it possible to highlight the features that characterize Internet commerce development in Russia:

- poor development of logistics over a large territory of the country. Despite the success of the "Russian Post" in promptly arranging delivery for online stores, logistics remains a weak link. In this regard, many Internet sellers are planning to create logistics channels based on their offline representations autonomously. However, only large chains can afford this method due to the high costs on the seller's part. For medium and small Internet companies, the way out can be an Internet aggregator's activity and the activities of courier services;

- pressure from foreign and shadow competitors on bona fide Russian Internet sellers. Foreign online stores will increase their market share in the Russian Federation since they will offer cheaper and, at the same time, high-quality goods due to tax savings. It is important to note that foreign chains are aware of the Russian Federation's potential; therefore, they are introducing a Russified interface since it is the language barrier that is the main barrier to online purchases in foreign online stores;

- low level of trust in online purchases. Even though the rather high penetration of the Internet in the Russian Federation, the growth of the level of technological literacy, financial culture (use of non-cash means of payment), the central problem of Russian Internet commerce is becoming distrust of online stores, as well as of the quality of the products they offer. This circumstance is because the risk of acquiring illegal goods in the Russian Federation is quite high. In this regard, in the near future, traditional (offline) points of sale (shopping centers, hypermarkets near the house) for certain categories of goods will continue to enjoy great consumer confidence.

According to experts, the dynamics of the Russian Internet market's development will be positive despite the presence of the above barriers. However, improving legislation, leveling competitive advantages between domestic and foreign players, and establishing logistics will give the market a new impetus in difficult macroeconomic conditions [17]. Summing up, it can be noted that the Internet is becoming an indispensable platform for trade and a portal for the formation of a multifaceted market for goods and services covering all spheres of people's life.

Let us take a closer look at the Russian Internet market. In our research, the differentiation of Internet sites was carried out, and the specificity of each of them was revealed:

- online stores: universal platforms, large platforms with a wide range of goods, including almost all categories of goods – "Aliexpress", "eBay", "JD", "Ozon" and other online stores;

- online mono-brand stores as brand stores representing one group of goods - most often, clothes/shoes/accessories, furniture, etc. – "Asos", "Lamoda", "Wildberries", Labyrinth and other online mono-brand stores;

- online stores with large offline platforms are another service to the existing sizeable retail network – MVide, Ikea, Chitai-Gorod, DNS, Golden Apple, and other online stores;

- online stores of secondary sale, that is, intermediary services for the sale of often used
goods from individuals to each other – "Avito", "Joom", "Yula" and other online stores of secondary sale;
• aggregator sites that allow comparing prices and offers of all sellers on the Internet – "Aviasales", "Yandex-market" and other aggregator sites;
• Internet catalogs in social networks, business accounts with the sale of goods on social networks "Instagram", "VKontakte", "YouTube" and other social networks often perform only the function of a catalog and promotion of goods with the provided tools for purchasing and, as a rule, with a separate website for the online store.

It should be noted that sellers often combine store formats to achieve the best results. For example, mono-brand online stores often have social media accounts with the ability to order and purchase through them; actions with secondary sale elements are often organized on social networks, aggregators have been introduced into online stores with offline sites to prove the most profitable offers on the market.

During the analysis, the most popular products sold on the Russian Internet market and the frequency of their purchases by the youth of Yekaterinburg were identified. For the subsequent analysis, it is important to highlight the analytical model of consumer strategies of youth.

Analysis of the results of quantitative and qualitative research methods allowed identifying the following typology of consumers (consumer strategies):
• specialists working in the field of online market or marketing;
• generally active, with experience of regular purchases (more than three categories of goods);
• partially active, with experience of irregular purchases (less than three categories of goods);
• passive, having experience with a single purchase (1-2 goods).

Table 2 illustrates consumer responses combined with different consumer strategies.

**Table 2**

<table>
<thead>
<tr>
<th>Product categories</th>
<th>Purchase frequency, %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 time in a month and more often; &gt; 12 times a year</td>
</tr>
<tr>
<td>Food (delivery)</td>
<td>30,7</td>
</tr>
<tr>
<td>Mobile / digital devices, accessories</td>
<td>2,0</td>
</tr>
<tr>
<td>Hobby and sports goods</td>
<td>4,0</td>
</tr>
<tr>
<td>Clothes and footwear</td>
<td>8,7</td>
</tr>
<tr>
<td>Image accessories (jewelry, watches)</td>
<td>2,7</td>
</tr>
<tr>
<td>Electronic purchases (tickets, music, software, games)</td>
<td>15,3</td>
</tr>
</tbody>
</table>
The most preferred categories of goods, often (once every 2–3 months or more) purchased by students on the Internet, are electronic purchases – tickets, music, software (42% in total), food delivery (57% in total). Despite this, food delivery is not a specific category of goods for a consumer-student: almost every second respondent considers it more expedient to buy food in an offline store (45%), and every fourth student (27%) decides to buy food from online service depending on promotions and sales. This data is due primarily to the difficulties associated with the long waiting time for the order: "... even online payment, and then they say that you have to wait 2.5 hours, and you are hungry ..." (f, partially active).

Electronic ticket purchases, in turn, are also becoming an integral part of the consumer behavior of a modern student: "I bought tickets from Russian Railways so as not to stand in queues at train stations, it was very convenient" (m, partially active), "I buy tickets every week" (m, generally active). On the other hand, the purchase of electronic tickets for leisure activities routinizes the very process of consumption "for a special occasion": "if there is a ticket for my favorite band, which I have dreamed of going to all my life ... then I will get worn out and buy a paper ticket. Well, in order to feel the consumer "experience" as much as possible" (m, specialist). A similar situation with purchases of unusual and gift goods on the Internet: on the one hand, PR and SMM technologies, as well as the introduction of their own, often commercial blog directly by the seller himself (for example, in the case of the category of "hand-made" goods) facilitates the path from the seller to the buyer: "It is interesting to buy some designer things: there are many shops run by an artist/sculptor who make a single copy, without an Internet blog this thing can never be found" (well, passive). "I was buying ... a unique piece of jewelry, which is made by one master somewhere incomprehensible. Well, that is, I don't even know where he lives, well, somewhere in Russia ... it doesn't matter where he lives, and I was able to acquire this unique item via the Internet, which is, in general, huge plus" (m, specialist). Another opinion: "Gifts: this year online stores generally rescued me because I bought almost all the gifts through them ... something from entertainment, roughly speaking. Or decor" (m, generally active). However, on the other hand, the Internet deprives the buyer of the very process of searching for an unusual product/store: "But if you use it to buy something unusual, you want, as it were, not to use it, but to use your real eyes, ears, hands and so on. Well, this is because you want to feel a special case somehow. Therefore, if I want to buy something cool, I'd rather do it myself" (m, specialist).

Along with electronic goods and food delivery, the category "clothes and shoes" is also popular among online purchases: the majority of students (72% in total) buy clothes and shoes...
2–3 times a year and more often. When choosing shoes or clothes, respondents are also guided by promotions and sales (41%), but almost every 2nd student considers the traditional way of buying clothes on offline trading platforms to be the most appropriate. Example: "Well, but something that goes beyond the boundaries of everyday life, something unusual, for example, a skirt that you have never worn before, I would buy it in a physical store so that you can try on" (well, partially active). The high relevance of purchases, for example, clothes and shoes on the Internet, is confirmed by the popularity among students of Internet sites selling this particular category of goods. Sites and mobile applications "Lamoda", "Asos", "Wildberries", "H&M" are mentioned by every second student (56%). The last purchase statistics confirm this: 17% of the respondents purchased clothes, 8% – shoes. It should be clarified that the data of the last purchase is also due to the change in the wardrobe of the respondents in connection with the change of season.

The survey materials showed that students with Internet consumption experience make online purchases, mainly, once every six months (38.7%), once every 1-3 months (29.3%). However, a visit to an online store is not always accompanied by a purchase. The most preferable are the following functions:

- the use of online catalogs posted on the store's website in order to get acquainted with prices and assortment (55% of respondents do this regularly, and 39% – sometimes);
- checking the store's availability, pre-ordering a product, or booking it with subsequent pick-up (19% of respondents do it regularly, 47% sometimes).

"I have a phone from an online store, it costs 3 thousand less than in a physical store. It was selected through aggregators such as Yandex-Market, which monitor where it is and..."
what the price is" (i, partially active). The last purchase of every 2nd respondent (50%) dates from the month of the survey; the rest of the survey participants made their last purchases during the year, while only 1.3% of respondents bought the product more than one year ago. This circumstance testifies to the current shopping experience and the increasing frequency of purchases via the Internet.

Note that many features characterize the modern young consumer who actively uses the Internet:

- requirements for expanding the number of options, since the ability to choose between several options carries value for the "network" generation that grew up in conditions of freedom and interactivity;
- the desire to customize, adjust the products for yourself, express individuality with its help (both externally, by changing materials and colors, and internally, by changing the settings and options of the product);
- quick change of preferences: both a positive phenomenon for manufacturers of goods (attracting new customers) and negative phenomenon (low loyalty to products);
- the desire to try out the products, make sure of its quality (the desire to get a trial version, for example, in multimedia products – music, programs, games);
- a shift from the product’s external characteristics to its functionality, the conceptual balance between design and product characteristics [18].

CONCLUSION

The adherence to online shopping is determined by several factors: activity on the Internet and social networks, relatively low prices for goods on the Internet market, an expanded range of goods (not only the local market). The vast majority of respondents use social networks every waking hour, and more often: 38% – hourly, 34% – more often than one time in half an hour. Social media is a powerful lever for the operation and distribution of online marketing, generating demand, and providing supply. A large flow of advertising accompanies this process on the Internet: 90% of that surveyed claim to have encountered contextual advertising on social networks.

Students' commitment to online shopping is a complex social phenomenon that reflects the demands of the times. This circumstance is why 94% of users expect to shop online again. Students' commitment to shopping in online markets is determined by their desire to receive great offers, participate in promotions and sales, quickly find the best product in terms of price and quality through Internet aggregators, which, in aggregate, can significantly save on purchases. It is crucial to gain access to a broad market for goods outside the student's home. This access allows purchasing goods that are not among the students of the immediate environment and thanks to which people can look more advantageous.
Today's youth's consumer behavior demonstrates a tendency to increasingly redirect the flow of purchases from traditional forms to purchases in the Internet market. Young people are characterized by analysis of prices and offers, searching for information about a product, checking availability, booking/making a preliminary product, fast online payment, and other Internet activities. A combined method of consumption comes to the fore, combining the market analysis for goods through Internet sources and receiving goods directly on the offline market, which significantly minimizes the risks associated with Internet intermediaries.

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What determine inflation in Pakistan: an investigation through structural equation modeling by using time series data for a period from 1975 to 2017

**KEYWORDS**

monetary policy; output; interest rate; MTM; inflation; cost channel demand channel; structural equation modeling

**ABSTRACT**

Interest rate is the most popular instrument of monetary policy to control inflation around the globe. It is assumed that the tight monetary policy, such as an increase in interest rate, will reduce inflation by reducing aggregate demand in the economy. However, in reality, the use of monetary tightening could be counterproductive. The monetary tightening may increase inflation dates back to 1923 when Gibson (1923) observed that correlation between interest rate and inflation is positive.

There are different opinions about how the interest rate affects inflation. The most famous is called Monetary Transmission Mechanism (MTM). According to the demand side channel of MTM, increase an interest rate, therefore the aggregate demand will decrease and finally, the price level will decrease. However, the supply side channel of MTM, states that the rise of interest rate will increase the cost of production, shifting up the aggregate supply curve. This will create a rise in the general prices level.

The problem in that, there are many channels of MTM which can be categorized into demand side and supply side. Many researchers take one channel and make single equation, this leads to missing variable bias. Therefore there is need to take them simultaneously which can be done by (SEM) Structural equation modeling. This research study is very significant, because this research combines both demand and supply channel simultaneously, and removes biasedness through (SEM) structural equation modeling.

The Augmented Dickey-Fuller (ADF) test finds that all the variables are stationary at first difference i.e. I (1), except inflation and investment. Firstly, unrestricted structural equation model (USEM) has estimated. The mostly coefficient of USEM has found to insignificant i.e. their probability value more than 50 percent. To remove the insignificant coefficient, we are given these unnecessary coefficients the regression weight is zero for the purpose of getting significant results. Secondly, the restricted structural equation model (RSEM) is estimated. The estimated results reveal that; interest rate has a positive relation with exchange rate and industrial inputs prices, while negative relation with the price of equity and investment. Therefore, the exchange rate, price of imports, price of exports and consumption have a positive relation with inflation while investment, loan, and output have a negative relationship with inflation.

Finally, the interest rate is not a significant determinant of inflation. Therefore, the exchange rate and cost channel are responsible for the transmission mechanism of interest rate to inflation in Pakistan. This study can be extended in several ways. First, this study focus on how monetary policy effect inflation, further includes in this study fiscal policy. Lastly, a regional analysis can serve as the best extension of this research. Our work was focused on Pakistan only, however a regional comparison can be appropriate.

INTRODUCTION

Background of the study

The major objective of the central bank of any country to control inflation and maintain the price stability. To achieve these objectives, the monetary authorities use the policy variables (interest rate and money supply etc.) to control inflation and maintain the price stability. The central bank looks at every other thing but mainly focused on inflation. The Central bank assumes that inflation can be controlled by adopting a tight monetary policy; therefore, they are increasing interest rate to reduce inflation. The standard monetary theory assumes that increasing interest rate to reduce inflation by reducing aggregate demand in the economy. Many central banks are now using Taylor Rule to monitor the interest rate is the major policy variable suggested by this rule.

There are different opinions about how the interest rate affects inflation. The most famous is the so-called Monetary Transmission Mechanism (MTM). According to the demand channel of MTM decrease in money supply will increase the interest rate, therefore the aggregate demand will decrease and finally, the price level will decrease. Most literature worked on the relationship between the interest rate and inflation have focused on Demand-side MTM channel [6; 29].

However, there are several other channels to link the interest rate with the level of prices, which show that the rise in interest rate would raise the price level. E.g., cost channel states that the rise of interest rate will increase the cost of production, shifting up the aggregate supply curve. This will create a rise in the general prices level. Many Researcher claims that the rise in interest rate leads to higher inflation; therefore, impacts on the cost side of the economy. The monetary tightening will reduce the aggregate supply and further increase inflation. Therefore, the indication that monetary tightening increases inflation dates back to 1923 when Gibson (1923) fount that the correlation between the inflation and interest rate for UK’s historical data is positive. Rehman [6] observed that the rise in interest rate leads to higher inflation; therefore, impacts on the cost side of the economy.

There are different causal channels through which monetary policy can affect the target variables such as interest rate. The most popular of which so called demand channel of monetary transmission mechanism.

The problem in that, there are many channels of MTM which can be categorized into demand side and supply side. Many researchers take one channel and make single equation, this leads to missing variable bias. Therefore there is need to take them simultaneously which can be done by structural equation modeling (SEM).

Objective of the study

1. To find determinants of inflation using Structural Equation Modeling which takes care of all possible causal channels.
2. To explore dominant monetary mechanism among the cost side and demand side monetary transmission channels.

**Significance of the study**

Different researchers employed different methodologies to empirically investigate the causes, effects, and determinants of inflation. The researcher takes one channel for inflation demand or supply and makes single equation model, but not combines channels which leads to biased results. This research study is very significant and important, because this research combines both demand and supply channel simultaneously, and removes biasedness through (SEM) structural equation modeling. Moreover this empirical study will be helpful for the monetary policy of Pakistan to adopt the correct policy to control inflation.

**The monetary transmission mechanism**

Monetary policy affects the economy and the price level through several channels. The rule by which monetary policy decisions are transferred to the real economy is called the monetary transmission mechanism (MTM). The MTM is the most famous mechanism of the economy. Therefore, how varying in the central bank policy rate are transferred through the economy influencing, aggregate supply and aggregate demand, and inflation rate.

1 **Channels of Monetary Transmission Mechanism:**

The monetary transmission mechanism (MTM) has six channels includes; (1) Interest rate channel, (2) Credit Channel (3) Assets Price Channel, (4) Exchange rate Channel, (5) Expectation Channels (6) Cost Channels. These channels are pictured in figure one. The details of these channels are mentioned below:

![Figure 1 Channels of MTM (Source: Ghafari & Rehman (2013))](image-url)
1.1 Interest Rate Channel

In this channel the rising interest rate has negative impact on output and inflation. This is because when central bank increase policy rate ($i^\uparrow$) consequently rising cost of capital, hitting a brake on investment ($I^\downarrow$). Furthermore, increasing saving and consumption decreasing ($I^\downarrow$) thereby the aggregate demand to weaken ($Y^\downarrow$). Moreover, the interest rate has negative relation with investment as well as output of the economy. Smets and Wouters found that the interest rate channel has an effect on consumption, investment demand and real output for the euro area countries. When aggregate demand sinks below aggregate supply, the expected finding is downward pressure on prices, and therefore inflation is reduce ($\pi^\downarrow$).

\[ M^\downarrow \Rightarrow i^\uparrow \Rightarrow r^\uparrow \Rightarrow \text{cost of capital} \uparrow \Rightarrow I^\downarrow \Rightarrow C^\downarrow \Rightarrow Y^\downarrow \Rightarrow \pi^\downarrow \]

1.2 Credit Channel

The second channel of MTM is called the credit channel. The fluctuations in interest rate have an impact on the supply of credit. Bernanke divided credit channel into two types; firstly bank lending and secondly balance sheets channels.

1.2 (a) The Bank Lending Channel (the narrow credit)

The bank lending channel hypothesizes that varying in monetary policy will shift the supply of credit, especially credit reached within commercial banks. The Monetary policy actions may influence the supply of loanable funds accessible to banks, bank’s liabilities, and consequently the total amount of loans they can make a bank’s assets.

\[ M^\downarrow \Rightarrow i^\uparrow \Rightarrow \text{bank deposits} \downarrow \Rightarrow \text{bank loans} \downarrow \Rightarrow I^\downarrow \Rightarrow C^\downarrow \Rightarrow Y^\downarrow \]

Where ($M^\downarrow$) shows a tight monetary policy to an increase in real interest rate ($i^\uparrow$), impact on slowdown of the bank deposits ($BD^\downarrow$), therefore causing a reduce a bank loan, ultimately investment expenditure ($I^\downarrow$), and consumption pattern of household also ($C^\downarrow$), leading to decline in aggregate demand and output level go down ($Y^\downarrow$). Monetary policy influences bank deposits, leading to varying in the amounts of bank loans, investment, and output.

1.2 (b) Balance Sheet Channels

This channel of the MTM refers to the role of the financial condition of private agents plays in the MTM. It occurs because the changes in policy not only influence the market interest rates but also the financial position of private agents because varying the policy rate affect consumers, cash follows the net worth of companies and bank balance sheets. Higher interest rates ($i^\uparrow$) result in reduced cash flow, and reduced net worth of the banks, therefore adverse selection and moral hazard increased ($\uparrow$). Hence the drop in loans, thus decrease in lending. If lending goes down the investment is reducing ($I^\downarrow$) and finally decline in aggregate output ($Y^\downarrow$).

\[ M^\downarrow \Rightarrow i^\uparrow \Rightarrow \text{adverse selection} \& \text{moral hazards} \uparrow \Rightarrow \text{lending} \downarrow \Rightarrow I^\downarrow \Rightarrow Y^\downarrow \]

1.3 Other Asset Price Channel

The third channel of MTM, concentrate on other asset price channel. This channel reveals,
how the monetary policy determine domestic asset prices; such as real estate prices, stock market, and bond. Furthermore, a variation in the securities prices creates a variation in wealth which can influence household consumption.

Tobin’s q Channel: \( q = \frac{MVF}{RCC} \)

Where the market value of firms (MVF) and replacement cost of capital (RCC). The Tobin q Ratio shows the relationship between intrinsic value and market valuation. In other terms, intend to estimate whether a provided business or market is undervalued or undervalued. When the Tobin q value is lies between (0 and 1) suggest that the stock is undervalued, this is because of, and the cost to replace a firm’s assets is higher than the value of its stock. On the contrary, when the Tobin q is higher than 1, indicate that the stock is overvalued because a firm’s stock is more costly than the replacement cost of its assets.

1.3 (a) Equity Price effects on investment

When Central bank used tight (\( i \uparrow \)) monetary policy that leads to decrease equity prices. The Tobin q value of (\( q \downarrow \)) is reducing, therefore the stock market value of firm capital reduces as result firms do-not issue new equities which reveal to reduce investment (\( I \downarrow \)), the aggregate demand is also decreasing (\( Y \downarrow \)).

\[
M \downarrow \Rightarrow i \uparrow \Rightarrow P_e \downarrow \Rightarrow q \downarrow \Rightarrow I \downarrow \Rightarrow Y \downarrow
\]

1.3 (b) Wealth effects on consumption

Wealth effect is introduced by Norrbin in his famous “life cycle hypothesis of consumption”, argue that the consumption is the most important mechanism. According to Modigliani found that when policy rate increase lead to reduce household long term assets, therefore the household wealth reduce, which more reduce consumption expenditure and the output. Considering that tight monetary policy stock prices, the wealth transmission mechanism works as follows:

\[
M \downarrow \Rightarrow i \uparrow \Rightarrow P_e, \text{equity, property \& land} \downarrow \Rightarrow W \downarrow \Rightarrow C \downarrow \Rightarrow I \downarrow \Rightarrow Y \downarrow
\]

Tobin’s q and wealth mechanisms allow for a general definition of equity that includes properties and land. For example, a decrease in property prices, which reduce their value relative to replacement cost, therefore decrease Tobin’s q for the property, thereby decreasing its production. Also, a decrease in property and land prices, its result wealth reduce (\( W \downarrow \)), thereby reduce consumption (\( C \downarrow \)) and output (\( Y \downarrow \)).

1.4 Exchange Rate Channel

The exchange rate channel explains how monetary policy changes the strength of the currency, the monetary policy rises the policy rate reaches to a strengthening of the domestic currency. The exchange rate effects inflation through varying in the domestic prices of goods for the rest of another country trade. The low payment on imports in this way inflation is controlled. The economy is effected through exchange rate channel via demand side and supply side respectively.
The demand side, the rise of interest rate \((i^\uparrow)\), leads appreciate the domestic currency. The price of domestic goods increased \((P_{dg})\), the exports are reduced and finally net exports also \((NX_{\downarrow})\) decreased. When the net exports go down the output is also \((Y_{\downarrow})\) goes down.

\[
M_{\downarrow} \Rightarrow i_{\uparrow} \Rightarrow E_{\downarrow} \Rightarrow P_{dg}^\uparrow \Rightarrow P_{fg}^\downarrow \Rightarrow NX_{\downarrow} \Rightarrow Y_{\downarrow} \Rightarrow \pi_{\uparrow}
\]

The supply side, central bank used loose \((i_{\downarrow})\) monetary policy, To decrease the nominal interest rate which further decreases the real interest as a result domestic currency depreciates due to uncovered interest rate parity. If currency is depreciate ultimately exchange rate increased \((E_{\uparrow})\), lead to increases firm’s cost of production and \((r^\uparrow)\) retail prices of import prices based goods and services and also increase the price of \((P_{fg}^\uparrow)\) imported prices. which further decreases aggregate demand and \((Y_{\downarrow})\) output and finally increased inflation \((\pi_{\uparrow})\).

\[
M_{\uparrow} \Rightarrow i_{\downarrow} \Rightarrow E_{\uparrow} \Rightarrow r_{\uparrow} \Rightarrow P_{dg}^\downarrow \Rightarrow P_{fg}^\uparrow \Rightarrow Y_{\downarrow} \Rightarrow \pi_{\uparrow}
\]

1.5 Expectation Channel

Inflation expectations are the main way for companies and firms to set their prices and wages formation function for their employers and thus inflation. This channel is a very significant role in determining the current as well as future levels of output production. The increasing policy rate is also changing the behavior of the economic agents. If the behavior of the economic agent’s changes the economic activity is also varying and prices, this is because of expectation.

1.6 Cost Channel

This is the last channel of MTM. Normally the researcher reflects that inflation can be controlled by adopting the tight monetary policy. Goes up policy rate leads to also go up cost of working capital, indusial inputs prices and general cost of production are increasing. Therefore, the marginal cost of the firms also rises. When MC goes up the output of the firms are decreasing and finally, inflation is increase.

\[
M_{\downarrow} \Rightarrow i_{\uparrow} \Rightarrow \text{cost of working capital}^\uparrow \Rightarrow MC^\uparrow \Rightarrow \text{cost of production}^\uparrow \Rightarrow Y_{\downarrow} \Rightarrow \pi_{\uparrow}
\]

Where \((M_{\downarrow})\) shows a tight monetary policy driving to an increase in real interest rate \((i_{\uparrow})\), impact on boosts the cost of production, therefore causing a decline in aggregate demand and output level go down \((Y_{\downarrow})\), and ultimately \((\pi_{\downarrow})\) inflation is decreasing.

LITERATURE REVIEW

1. Demand Side Channel of MTM

Demand side inflation occurs when the aggregate demand is more than aggregate supply therefore prices go up. According to [15] investigated the relationship between monetary policy and inflationary pressure in Pakistan by using ARDL. Annual data was selected from 1973 to 2013. They found that Money supply is an important variable of controlling inflation. Ahmed [37] examined Inflation and their determinants in case of Pakistan, from 1971 to 2012 by applying Johansen Co-Integration Approach. They also found that money supply and inflation
had positive relation with each other, if 10 percent increase in money supply causes 6.9 percent rise an inflation. There result support demand-side inflation. According to [26] money supply effects all indicators of inflation.

Speedy rising in the population leads to increase in prices. When the population increase, demand for goods and services also rises. If demand rises but supply is constant, it creates unbalance between supply and demand. This leads to demand pull inflation. Adam worked on cross country and U.S metro, using panel regressions analysis. They found population growth was negatively related to inflation. One percent reduction in population growth decreases inflation by one third to two third percent. According to [13] indicated that, population growth rate is major determinants of unemployment and inflation.

2. Cost Channel of MTM

In the long run, rising Imports of goods and services will adversely affect investment. The price level increases if a deficiency of aggregate demand in the economy. Therefore, the imports prices increase due to higher demand for imported goods i.e. (raw materials, machinery, technology, etc.) resulting the price level increase [9] analyzed determinants of inflation in Turkey. The coefficient of import price, was positive meaning that, import prices had positive relation with inflation. By using Johannes cointegration utilizing by [37] found that import of goods and services was the main reason of inflation. The study of [26] suggested that imports were directly related to all price indicators (WPI, SPI, CPI, and GDP Deflator). Arif & Ali [2] worked on Bangladesh economy and found in long run import of goods and services had direct effect on inflation.

Aggregate supply is an important reason for inflation. While the view of new Keynesian is when government expenditure are more than their revenue, the government takes deficit financing, therefore, prices level increases and also inflation occurs. Moreover, inflation expectation increases if upgrade level of government debt. Bashir [9] found the cast went up the goods and services, when refunded the debt. Umaima and Yasmín examine the effect of public expenditure on the whole economic activity. Their result showed that public debt leads to fiscal expansion leading to a greater vulnerability of raising inflation which further leads to the higher interest rate. Khan et al., [33] found that public sector borrowing had a direct effect on inflation in Pakistan.

Our export is less than imports, so when the exchange rate falls (depreciate domestic currency) therefore imports prices increases, but the net exports reduce. Mbongo et al. examined effect of money supply on inflation in Tanzania from 2000 to 2011. They found, 1 percent decrease of exchange rate against US dollar pushed 0.3 percent of inflation in Tanzania. Moreover, exchange rate and money supply directly related to inflation. The study conducted by Alexander et al. in Nigeria found in both fiscal and monetary policy affect inflation. Moreover, exchange rate influenced inflation in long run. Present year real exchange rate in Dollar reduced inflation. While former year real exchange rate increased inflation rate.
3. Structural Equation Modeling

Many literatures worked on Determinants of inflation? Either using simple regression or VAR and SVAR, but this empirical study justify the methodological gap by answering the above question using a various approach. A VAR system is a multi-equation system there is one equation for each variable being examined. Each variable is explained by its lags and all the lags of all the other variables. The SVAR is the simultaneous family, which explores cause and effect relationship, which display the effect of structural shocks on selected variables by using impulse response function. The problem is generating in SVAR the structural shocks is not random, but this is already in the part of existing information. Also in the conventional technique, there is creating a problem of Missing variable bias. Because of this weakness in the above given traditional approach. The present study answers ‘Determinants of inflation? Using structural equation Modeling (SEM).

MATERIALS AND METHODS

It is of immense importance to empirically test the theoretical underpinnings. Without empirical testing, one cannot be sure that whether theory is correct or not. To estimate the model, one need data and has to specify an estimation technique.

1. Structural Equation Modeling (SEM)

The relationship between inputs of monetary policy and output, it cannot be described as a single equation relation. There are number of transmission channels, which transmit the effect of monetary policy variables to the target variables through a separate set of intermediate variables. Each of the policy’s inputs described above, effects intermediate variable which simultaneously impact output variables. Therefore, a system of equations is needed to describe relation between monetary policy’s inputs and inflation. If any one of the equations from a system of equations is estimated by ignoring the others, then the estimates are subject to missing variable bias.

Therefore, we have chosen Structural Equation Modeling for quantifying the relation between monetary policy and inflation. The structural equation modeling is capable of estimating the system of equation such as the above mentioned system can be estimated simultaneously without the endogeneity or missing variable bias. Structural equation modeling (SEM) is a multivariate statistical technique that is applied to explain the relationship among multiples variables. It investigates the structural relationships expressed in a series of the equation, alike, to multiple regression analysis.

2. Variables of Monetary Transmission Mechanism (MTM)

There is a causal chain of monetary policy impacting inflation through different channels. We will use three types of variables.
2.1 Inputs variables

Input variables mean the input of monetary policy. These are inputs of monetary policy, namely interest rate (IR) and money supply (MS).

2.2 Intermediate variables

Intermediate variables are those variables which have a relationship with output variables but are not direct inputs of monetary policy. These variables are not the direct input of monetary policy, rather these are consequences of the inputs of monetary policy and may affect the output variables. These include i.e. Exchange rate (ER), Price of imports (PI), Price of Export (PE), exports (EXP), consumption (c), Bank Deposits (BD), Investment (I), loan (LN), Output (Y), Price of equity (Peq), Industrial inputs prices (IIP).

2.3 Output variables

Output variables; which are Inflation (INF). In Figure 2 explains how input variables affect intermediate variables and then output variables. It includes all variables explain above.

Figure 2 Path Diagram of MTM (Source: Author’s own drawing based on theoretical models)

In figure 2, cover many channels of MTM the demand channel and supply channels. The causal paths describes – equations (1 to 13) can be written in the following equation:

Equation (1) describes that interest rate (IR) linearly depends on Money supply (MS) i.e.
\[ IR_t = \beta_{1,1} MS_t + U_{1t} \]  
Equation (2) describes that Exchange rate (ER) linearly depends on interest rate (IR) i.e.

\[ ER_t = \beta_{2,1} IR_t + U_{2t} \]  
Equation (3) explains that Price of import (PI) linearly depends on Exchange rate (ER) i.e.

\[ PI_t = \beta_{3,1} ER_t + U_{3t} \]  
Equation (4) explains that Price of Export (PE) linearly depends on Price of import (PI) i.e.

\[ PE_t = \beta_{4,1} PI_t + U_{4t} \]  
Equation (5) shows that export (EXP) linearly depends on Price of Export (PE) i.e.

\[ EXP_t = \beta_{5,1} PE_t + U_{5t} \]  
Equation (6) shows that Bank Deposits (BD) linearly depends on interest rate (IR) i.e.

\[ BD_t = \beta_{6,1} IR_t + U_{6t} \]  
Equation (7) shows that consumption (C) linearly depends on investment (I) i.e.

\[ C_t = \beta_{7,1} I_t + U_{7t} \]  
Equation (8) shows that Price of equity (Peq) linearly depends on interest rate (i) i.e.

\[ Peq_t = \beta_{8,1} IR_t + U_{8t} \]  
Equation (9) shows that industrial inputs prices (IIP) linearly depends on interest rate (IR) i.e.

\[ IIP_t = \beta_{9,1} IR_t + U_{9t} \]  
Equation (10) shows that Loan (LN) linearly depends on interest rate (IR), Bank deposits i.e.

\[ LN_t = \alpha_{1,1} IR_t + \alpha_{1,2} BD_t + U_{10t} \]  
Equation (11) shows that Loan (LN) price of equity (Peq) i.e.

\[ LN_t = \alpha_{2,1} IR_t + \alpha_{2,2} LN_t + \alpha_{2,3} Peq_t + U_{11t} \]  
Equation (12) shows that Output (Y) linearly depends on exports (EXP), consumption (C), Investment (I), industrial inputs prices (IIP) i.e.

\[ Y_t = \alpha_{3,1} EXP_t + \alpha_{3,2} C_t + \alpha_{3,3} I_t + \alpha_{3,4} IIP_t + U_{12t} \]  
Equation (13) will show the linear regression of output variable inflation (INF) and all the intermediate variables i.e. Interest rate (IR) have linear relation with intermediate variables i.e. Exchange rate (ER), price of imports (PI), price of exports (PE), Exports (EXP), bank deposits (BD), investment (I), consumption (c), price of equity (Peq), loan (LN), Industrial inputs prices (IIP), and Output (Y) i.e.

\[ INF_t = \alpha_{4,1} ER_t + \alpha_{4,2} PI_t + \alpha_{4,3} PE_t + \alpha_{4,4} EXP_t + \alpha_{4,5} BD_t + \alpha_{4,6} C_t + \alpha_{4,7} Peq_t + \alpha_{4,8} LN_t + \alpha_{4,9} IIP_t + \alpha_{4,10} Y_t + U_{13t} \]  

3. Augmented Dickey-Fuller Test

The rationale of the ADF test is the violation of the Assumption in DF Test. If there is a serial correlation problem in the data generating process of the DF test, then we apply the Augmented Dicky fuller Test to detect the stationarity in the data series. So to deal with this problem we introduce the lag of the dependent variable as an independent variable in the model until the problem of serial correlation is removed. To check the stationarity of variables we will apply the Augmented Dickey-Fuller Test. So the equation we estimate after introducing
The lag of dependent variables as independent variables is known as Augmented Dickey-Fuller (ADF) regression:

\[ \Delta X_t = \theta + \beta_t + \rho X_{t-1} + \sum_{i=1}^{\infty} \beta_i \Delta X_{t-i} + u_t \]  

(14)

In the given equation (14), the \( \Delta X_t \) is the dependent variable represents first difference of the data series. The independent variables of the series which are \( \theta, \beta_t, \rho, \beta_i \) and \( u_t \). The \( \theta \) is the constant term, \( \beta_t \) represent trend of the data series, \( \rho \) shows slope of the first difference of \( X_t \) series, \( \beta_i \) represent coefficient of the \( i \) lags of the 1 series and \( u_t \) is the error term respectively. The ADF applicable if there error term is white noise i.e. \( u_t \sim N(0, \sigma^2) \).

**RESULTS**

The fundamental objective of the present study is answering a question: what determine inflation in Pakistan? The question is modeled by using structural equation modeling. The following are the main results.

1. **Results of Unit root test**

   In order to Avoid Spurious Results, before the estimation whether data is stationary or not? All the variables are transformed into logarithmic form, except inflation, investment and interest rate before applying the unit root test. The Null hypothesis of the ADF test is non stationary, while Alternative hypothesis the data is stationary. The variable of the study included; Money supply (MS), interest rate (IR), Exchange rate (ER), Price of imports (PI), Price of Export (PE), export (EXP), consumption (c), Bank Deposits (BD), Investment (I), loan (LN), Output (Y), Price of equity (Peq), Industrial inputs prices (IIP), and inflation (INF). The ADF results are given below:

<table>
<thead>
<tr>
<th></th>
<th>Intercept</th>
<th>Trend &amp; intercept</th>
<th>Intercept</th>
<th>Trend &amp; intercept</th>
<th>Level of integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMS</td>
<td>-1.21</td>
<td>-2.81</td>
<td>-5.42***</td>
<td>-5.36***</td>
<td>I(1)</td>
</tr>
<tr>
<td>IR</td>
<td>-1.6</td>
<td>-1.64</td>
<td>-5.39***</td>
<td>-5.45***</td>
<td>I(1)</td>
</tr>
<tr>
<td>LER</td>
<td>-0.34</td>
<td>-2.21</td>
<td>-4.36**</td>
<td>-4.29***</td>
<td>I(1)</td>
</tr>
<tr>
<td>LPE</td>
<td>-1.88</td>
<td>-1.65</td>
<td>-5.38***</td>
<td>-5.67***</td>
<td>I(1)</td>
</tr>
<tr>
<td>LPI</td>
<td>-0.71</td>
<td>-1.99</td>
<td>-4.89***</td>
<td>-4.81***</td>
<td>I(1)</td>
</tr>
<tr>
<td>LEXP</td>
<td>-1.59</td>
<td>-2.05</td>
<td>-7.19***</td>
<td>-7.14***</td>
<td>I(1)</td>
</tr>
<tr>
<td>LC</td>
<td>-0.43</td>
<td>-1.61</td>
<td>-5.19***</td>
<td>-5.11***</td>
<td>I(1)</td>
</tr>
<tr>
<td>I</td>
<td>-3.23**</td>
<td>-3.37*</td>
<td>-</td>
<td>-</td>
<td>I(0)</td>
</tr>
<tr>
<td>LBD</td>
<td>-1.63</td>
<td>-3.05</td>
<td>-5.11***</td>
<td>-4.99***</td>
<td>I(1)</td>
</tr>
<tr>
<td>LLN</td>
<td>-1.19</td>
<td>-2.02</td>
<td>-5.53***</td>
<td>-5.59***</td>
<td>I(1)</td>
</tr>
<tr>
<td>LY</td>
<td>-0.94</td>
<td>-2.25</td>
<td>-5.45***</td>
<td>5.37***</td>
<td>I(1)</td>
</tr>
<tr>
<td>LPeq</td>
<td>-1.88</td>
<td>-1.65</td>
<td>-5.38***</td>
<td>-5.67***</td>
<td>I(1)</td>
</tr>
<tr>
<td>LIHP</td>
<td>-1.66</td>
<td>-1.95</td>
<td>-6.04***</td>
<td>-5.98***</td>
<td>I(1)</td>
</tr>
<tr>
<td>INF</td>
<td>-3.714358*</td>
<td>-3.674151***</td>
<td>-</td>
<td>-</td>
<td>I(0)</td>
</tr>
</tbody>
</table>

Note: *, **, *** indicates significance at 10%, 5%, 1%
Table 2 present the (ADF) Augmented dickey fuller test. At level mean an original data while 1st difference mean the 1st lag of the series. The variable LMS (log of Money supply), IR (interest rate), LER (log of exchange rate), LPE (log of price of exports), LPI (log of price of imports), LEXP (log of exports), LC (log of consumption), LBD (log of bank deposits), LLN (log of loans), LY (log of output), LPeq (log of price of equity), and LIIP (log of industrial inputs prices) are non-stationary at level but are stationary at the 1st difference, hence I (1). While I (investment), and INF (inflation) are stationary at level, i.e. I (0).

2. Results of Unrestricted Structural Regression Model

After testing stationarity of the variables. We know all variables of non-stationary at level i.e. I (0) except inflation and investment. To avoid spurious regression and taking meaningful conclusion. We are taking first difference of all the variables, except inflation rate and investment. Now the unrestricted structural equation model are to be estimated to answer the research questions. Unrestricted structural equation model in which all the independent variable are included in the model (stack, 2018). Thirteen equation would be estimated and the results for each model are summarized below:

Table 2

<table>
<thead>
<tr>
<th>Result of Unrestricted Structural Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unstandardized Coefficient</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>DIR &lt;--- DLMS</td>
</tr>
<tr>
<td>DLER &lt;--- DIR</td>
</tr>
<tr>
<td>DBD &lt;--- DIR</td>
</tr>
<tr>
<td>DLPI &lt;--- DLER</td>
</tr>
<tr>
<td>DLN &lt;--- DBD</td>
</tr>
<tr>
<td>DLpeq &lt;--- DIR</td>
</tr>
<tr>
<td>DLN &lt;--- DIR</td>
</tr>
<tr>
<td>DLPE &lt;--- DLPI</td>
</tr>
<tr>
<td>I &lt;--- DIR</td>
</tr>
<tr>
<td>I &lt;--- DLN</td>
</tr>
<tr>
<td>I &lt;--- DLpeq</td>
</tr>
<tr>
<td>DLEXP &lt;--- DLPE</td>
</tr>
<tr>
<td>DLC &lt;--- I</td>
</tr>
<tr>
<td>DLIIIP &lt;--- DIR</td>
</tr>
<tr>
<td>DLY &lt;--- DLEXP</td>
</tr>
<tr>
<td>DLY &lt;--- DLC</td>
</tr>
<tr>
<td>DLY &lt;--- DLIIIP</td>
</tr>
<tr>
<td>DLY &lt;--- I</td>
</tr>
<tr>
<td>INF &lt;--- DLY</td>
</tr>
<tr>
<td>INF &lt;--- DLEXP</td>
</tr>
<tr>
<td>INF &lt;--- DLPE</td>
</tr>
<tr>
<td>INF &lt;--- DLPI</td>
</tr>
<tr>
<td>INF &lt;--- DLER</td>
</tr>
</tbody>
</table>
Table 2, shows the result of unrestricted structural regression model (USEM). The above table highlighted rows are highly insignificant, there probability value in more than 50 percent. The insignificant coefficient of the variables includes; money supply, interest rate, Bank deposits, price of equity, and Exports.

3. Result of Restricted Structural Equation Model

Restricted Structural Regression Model is one in which coefficient of some independent variable are assume to be zero. This is because in present study the highly insignificant probability value i.e. p.value > 0.50 percent, are removed from the above model. The result Restricted Structural Regression Model (RSEM) are given below:

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficient</th>
<th>Standardized Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimate</td>
<td>S.E.</td>
</tr>
<tr>
<td>DIR</td>
<td>---</td>
<td>DLMS</td>
</tr>
<tr>
<td>DLER</td>
<td>---</td>
<td>DIR</td>
</tr>
<tr>
<td>DBD</td>
<td>---</td>
<td>DIR</td>
</tr>
<tr>
<td>DLPI</td>
<td>---</td>
<td>DLER</td>
</tr>
<tr>
<td>DLN</td>
<td>---</td>
<td>DBD</td>
</tr>
<tr>
<td>DLpeq</td>
<td>---</td>
<td>DIR</td>
</tr>
<tr>
<td>DLN</td>
<td>---</td>
<td>DIR</td>
</tr>
<tr>
<td>DLPE</td>
<td>---</td>
<td>DLPI</td>
</tr>
<tr>
<td>I</td>
<td>---</td>
<td>DIR</td>
</tr>
<tr>
<td>I</td>
<td>---</td>
<td>DLN</td>
</tr>
<tr>
<td>I</td>
<td>---</td>
<td>DLpeq</td>
</tr>
<tr>
<td>DLEY</td>
<td>---</td>
<td>DLPE</td>
</tr>
<tr>
<td>DLC</td>
<td>---</td>
<td>I</td>
</tr>
<tr>
<td>DLIIP</td>
<td>---</td>
<td>DIR</td>
</tr>
<tr>
<td>DLY</td>
<td>---</td>
<td>DLEY</td>
</tr>
<tr>
<td>DLY</td>
<td>---</td>
<td>DLC</td>
</tr>
<tr>
<td>DLY</td>
<td>---</td>
<td>DLIIP</td>
</tr>
<tr>
<td>INF</td>
<td>---</td>
<td>DLY</td>
</tr>
<tr>
<td>INF</td>
<td>---</td>
<td>DLEY</td>
</tr>
<tr>
<td>INF</td>
<td>---</td>
<td>DLPE</td>
</tr>
<tr>
<td>INF</td>
<td>---</td>
<td>DLPI</td>
</tr>
</tbody>
</table>
Table 3, shows the (RSEM), the above table few highlighted rows are insignificant coefficient which are restricted.

In given table (4), see standardize coefficient, the standardized coefficients of estimation equations (1 to 13) are given below:

\[
IR_t = 0.00MS_t + U_{1t} \quad (1) \\
ER_t = 0.123IR_t + U_{2t} \quad (2) \\
PI_t = -0.562ER_t + U_{3t} \quad (3) \\
PE_t = 0.280PI_t + U_{4t} \quad (4) \\
EXP_t = 0.820PE_t + U_{5t} \quad (5) \\
\]

In given Equation (1) the Money supply (MS) coefficient \( \beta_{11} = 0 \), this is because there probability value is greater than 50 percent which is highly insignificant. In equation (2), the interest rate goes up by 1 SD, the Exchange rate goes up by 0.123 SD. When interest rate increases its lead to appreciate domestic currency, there for more interest rate appeal to foreign capital and accelerate exchange rate. Equation (3), the exchange rate gives a negative impression on the price of imports that is economically not true. The price of imports would reduce by 0.562 SD due to 1 SD higher exchange rate in Pakistan. The results of Equation (4) of the study reveal that the price of imports is found to be directly related to the price of exports in Pakistan. The coefficient is signifying 0.280 SD rise in the price of exports due to a one percent increase in the price of imports. When the price of imports rises the price of exports also rises because in Pakistan imports are more than exports. Therefore, Pakistani people used imported technology its result the cost of production increases and the price of export also increase. Equation (5) shows that, when the price of export goes up by 1 SD, exports go up by 0.82 SD. The price of export has a positive relation with exports, this is economically not true.

\[
BD_t = 0.00IR_t + U_{6t} \quad (6) \\
C_t = 0.263I_t + U_{7t} \quad (7) \\
P_{eq_t} = -0.238IR_t + U_{8t} \quad (8) \\
IIP_t = 0.216IR_t + U_{9t} \quad (9) \\
LN_t = 0.00IR_t + 0.00BD_t + U_{10t} \quad (10) \\
\]

In given Equation (6), (10) the interest rate and bank deposits coefficient are zero i.e. \( \beta_{11} = \alpha_{11} = \alpha_{12} = 0 \) this is because there probability value is greater than 50 percent which is highly insignificant. In equation (7), when an investment goes up by 1 SD, therefore consumption goes up by 0.263 SD. Practically when investment increase leads to rises output of the economy people have more money comes up, to spend more and more on consumption.
Equation (8) shows that when the interest rate increases by 1 SD, the price of equity goes down by 0.238 SD. Therefore, an increase in the interest rate will decrease consumer and business spending and their earning decrease its results the price of equity also reduced. Equation (9) shows that, when the interest rate goes up by 1 standard deviation, industrial inputs prices go up by 0.216 standard deviations. The rise in interest rate will put positive pressure on the cost of production increases.

\[
I_t = -0.605 IR_t + 0.120 LN_t + 0.00 Peq_t + U_{11t}
\]

\[
Y_t = 0.00 EXP_t + 0.944 C_t + 0.151 I_t - 0.112 IIP_t + U_{12t}
\]

Equation (11) shows that a 1 SD change in interest rate will reduce the investment by 0.605 SD. We know that if the interest rate increases, the cost of borrowing and capital increases lead to reduced investment. The coefficient has a positive value with significant coefficient such that 0.120 SD rise investment due to increase 1 SD investment loan. The coefficient of the price of equity is zero i.e. \( \alpha_{23} = 0 \) because they have highly insignificant their probability value more than 50 percent. Equation (12) shows that, the exports coefficient has zero i.e. \( \alpha_{41} = 0 \). When 1 SD change in consumption lead to rise output by 0.944 SD. According to Piana other thing being constant when consumption increase the same amount output have raises. Moreover, when 1 SD change in investment leads to increase output by 0.151 SD, when investment increase the output is also increasing in economy. Finally, if industrial inputs prices 1 SD rises there lead to reduced output by 0.112 SD.

\[
INF_t=0.180 ER_t + 0.246 PI_t + 0.234 PE_t + 0.00 EXP_t + 0.00 BD_t - 0.171 I_t + \\
+ 0.299 C_t + 0.00 Peq_t - 0.198LN_t + 0.235 IIP_t - 0.308 Y_t + U_{13t}
\]

In the given equation (13) shows that the exchange rate has a significant effect on Inflation in Pakistan. The coefficient has a positive value is 0.180, one SD increase in the exchange rate will increase the price level by 0.180 SD. when the exchange rate increase the imported goods are more expensive. If imported goods like (production inputs, oil, etc.) more costly, then increase the domestic prices due to utilizing this imported goods in the production process its results inflation have also increased. The coefficients of the price of imports and the price of exports have positive, there for 1 unit increase the price of imports and the price of exports the inflation have come up by 0.264 and 0.234 SD respectively. If the price of imports and the price of export rise the production will be reduced therefore inflation has occurred.

The exports (EXP), bank deposits (BD) and price of equity (Peq) coefficients \( \alpha_{43} = \alpha_{44} = \alpha_{47} = 0 \), this is because their probability value is greater than 50 percent which is highly insignificant. The sign of the variable investment shows that there is a negative relationship between investment and inflation. If 1 SD increase an investment the inflation has reduced by 0.171 SD. The increase in investment reveals to rising employment and output level in the economy there for reduced inflation. A positive sign of consumption indicates a positive relationship between consumption and inflation. If 1 SD increase in consumption the inflation have raised by 0.299 SD. When consumption rises, the consumer demand more than the producer’s ability to produce the goods and services, therefore prices exceed. If this carries on, it makes inflation. The coefficient of loan has a negative sign if 1 SD increase loan the
inflation has reduced by 0.198 SD it is not true economically. When industrial inputs price goes up by 1 SD, inflation goes up by 0.235 SD. The industrial inputs prices rise the cost of production, therefore, output level decreases its results inflation have increased. The output has a significant coefficient, the negative sign reveals that, if 1 SD increase output level in the economy, the inflation has reduced by 0.308 SD.

**CONCLUSION**

This empirical study examines what determine Inflation in Pakistan? An Investigation through Structural Equation Modeling by using time series data for a period from 1975 to 2017. We have check variables for stationarity through ADF test. The ADF test shows that Money supply (MS), interest rate (IR), Exchange rate (ER), Price of imports (PI), Price of Export (PE), exports (EXP), consumption (c), Bank Deposits (BD), loan (LN), Output (Y), Price of equity (Peq), and Industrial inputs prices (IIP), are not stationary at level such that; I (1), while Investment (I), and inflation (INF) are stationary at level i.e. I (0). The result of unrestricted structural regression model (USEM) few coefficients are insignificant, there probability value in more than 50 percent. The RSEM estimated results reveal that; interest rate has a positive relation with exchange rate and industrial inputs prices, while negative relation with the price of equity and investment. Therefore, the exchange rate, price of imports, price of exports and consumption have a positive relation with inflation while investment, loan, and output have a negative relationship with inflation. Finally, the interest rate is not a significant determinant of inflation. Therefore, the exchange rate and cost channel are responsible for the transmission mechanism of interest rate to inflation in Pakistan.

1. **Policy Recommendation**

The interest rate is not a significant determinant of inflation. Therefore, the exchange rate and cost channel are responsible for the transmission mechanism of interest rate to inflation in Pakistan. The finding supports the finding of the [6] who also found that interest rate to control inflation is useless. On the other hands they affect investment, and growth rate negatively. To control inflation the policy of high-interest rate should be avoided.

2. **Future Research**

Just like every other research opens up new avenues for future work, this study too can be extended in several ways. First, this study focus on how monetary policy effect inflation, further includes in this study fiscal policy. Lastly, a regional analysis can serve as the best extension of this research. Our work was focused on Pakistan only, however a regional comparison can be appropriate. Provided that the child inflation rate of developing Asian countries including India and Bangladesh is also high, thus comparison using data from WDI could provide some useful insights.


20. Ghaffari, & Rehman. (2016). Failure of interest based monetary policy: evidences from selected Islamic and non-Islamic countries. Pakistan business review, 17 (4), 731-753. DOI: http://dx.doi.org/10.22555/pbr.v17i4.549

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State of shadow economic activity in Russian regions

Introduction. The level of the shadow economy is important for the development of any state, identifying the goals and priorities of its development. The shadow economy in Russia is the leading one among the problems that destroy the state system and pose a serious threat to national economic security.

Materials and Methods. To identify the state of the shadow economy in the Russian Federation in the context of its regions, the tax approach was used, on the basis of which the GRP indicators and components were analyzed.

Results. A comparison of statistical data with those provided by the Federal Tax Service made it possible to identify the scale of the shadow economy in Russian regions over the period from 2007 to 2018. An analysis of the data showed that from 2007 to 2009, there was a decrease in the level of the shadow economy, and, since 2009, its growth has been noted in most regions.

Conclusion. The presence of unaccounted economic activity in all Russian regions poses a threat not only to the economic security of individual regions but also to the safe and sustainable development of the entire state. Analysis of the state of the shadow economy in Russian regions showed the unevenness of its development in different regions. To conduct an effective policy of countering shadow economic processes, it is important to identify their scale and take regional characteristics into account.

INTRODUCTION

The shadow economy is becoming one of the important factors in the destabilization of the economic, social, and political life of society. It is closely related to the legal activities of society and occupies a significant part of it. The study of the scale of the shadow economy is of great scientific and practical importance, due to its negative impact on the national economy.

The presence of shadow economic relations in any economic system is accompanied by certain socio-economic deformations: ineffectiveness of macroeconomic regulation, a reduction in budget revenues, an increase in structural crises, an increase in the tax burden, a worsening investment climate, a decrease in trust in the government and its representatives, a change in the values of society, and many others.

The problem of the shadow economy, its structure, features of functioning and development have been studied in sufficient detail by scientists from various fields of knowledge. The variety of approaches when choosing the criteria for correlating types of socio-economic activity to the shadow one explains the complexity of categorizing this phenomenon.

Initially, the concept of the informal sector of the economy, which is an attribute of most developing countries, is formed and developed in science. Hart, who was one of the first to study the shadow sector of Ghana, described the situation with the informal sector as follows: “Rejected by the structure of formal opportunities, people from the lower ranks of the urban proletariat are looking for informal ways to increase their incomes” [1].

The scale of the shadow economic activity and the criteria for its correlation may differ depending on the specifics of the macroeconomic situation and the established traditions in the country. The study of small business by Mead and Morrison carried out in 1990 in seven developing countries and covering 2,200 enterprises confirms this [2].

In Russia, the study of the shadow economy has been conducted since the 1980s, when its scale became obvious, and the imbalance in the consumer market required drastic changes. The specified problem was studied by such scientists as Koryagina [3], Nikolaeva and Shevyakov [4].

Within the framework of the study of the informal sector and informal economy, carried out by domestic researchers, studies by Gimpelson and Kapelyushnikov should be noted [5; 6], which examine in detail the issue of dualism in the labor market, presupposing its segmentation into formal and informal sectors. The conceptual foundations of unregistered activity are laid down in Latov [7–9], Barsukova [10; 11]. The studies by Kosals [12] are devoted to corruption and spread of fraud; Radaev pays attention to certain aspects of illegal traffic of products [13; 14]. The structure of financial flows of the shadow economy was analyzed by Avdiyskiy [15].

The complex structure of the shadow economy does not allow the use of universal methods to measure this phenomenon. Researchers from different countries are trying to assess the
scale of the shadow economy in individual regions. Among foreign studies of the scale of the shadow economy, the most recognized are the works by Schneider [16; 17]. In the study of the shadow economy in 36 developed and developing countries of the European Union, a combined approach was applied, based on an econometric analysis of extensive statistical data and an analysis of the results of surveys.

Their entire set of methods can be conditionally divided into several groups:

1. Direct methods are based on inspections by the relevant authorities, interviews, and surveys. They are actively used to identify discrepancies between income and expenses of specific taxpayers or their groups [18; 19]. Despite the possibility of obtaining sufficiently detailed information about hidden economic processes, these methods give a high probability of an estimation error, since subjective factors have a significant impact on the research results.

2. Indirect methods use indicators that reflect certain aspects of informal economic activity. They are based on the analysis of data from ministries, departments, law enforcement agencies, and use the official statistics. The group of indirect methods consists of monetary, balance sheet, resource, expert assessment, etc. These methods are widely used to assess shadow processes at the macro level [20; 21].

3. Modeling methods allow analyzing the phenomena and processes associated with informal economic activities. The functional relationship between economic indicators and shadow processes is described by a mathematical model that makes it possible to simulate the development and estimate the volume of the shadow economy.

When applying research methods, it is necessary to take into account that there is no single method that would give accurate results for measuring the shadow economy.

According to the level of research, all methods can also be divided into macro and micro methods. This division is conditional, since all methods are actively used within the framework of various sciences, depending on the subject of research. Methods of sociology and criminology are used to study shadow relations at the micro level. Each method is applicable under certain conditions and in certain areas of social relations. To study the macro-processes of the invisible economy, the monetary method, the methods based on discrepancies between different statistical data, the method of technological coefficients, the assessment by employment indicator, etc. are used.

This study does not set the task of a detailed analysis of all methods developed by modern science for measuring the shadow component of the economy. In the authors’ opinion, it is important to identify the main methods that may be applied at the regional level. Studying the dynamics and regional features of the shadow economy is important for economic development and the formation of a sustainable state policy at both regional and state levels. It should be noted that the quantitative assessment of the shadow economy at the regional level is much less common. Often, scholars describe the characteristic features of the informal economic activity in the regions and the degree of its influence on certain aspects and spheres of society.
MATERIALS AND METHODS

Not all macro methods for measuring the shadow economy can be suitable for identifying the volume of the regional shadow economy. This is due to the specific features of the constituent entities of the Russian Federation, and problems with the availability of certain statistical data in the regions.

The main method for identifying the state of the shadow economy in the Russian Federation in the context of its regions was the method of Fedotov, Nevzorova, and Orlova. According to this methodology, the shadow activity is the only component of the gross regional product, therefore it can be included in the gross profit of the economy and gross mixed income. A significant advantage of the methodology is the use of data from the Federal State Statistics Service (Rosstat) and the Federal Tax Service [22; 23].

The size of the invisible component in the official economy of each region is determined as the discrepancy between the national accounts data, which are presented by the official statistics, and the indicators of tax reporting. This methodology was used to analyze the regional state of the shadow economy in Russia for the period of 2007–2018.

In general terms, the calculation of the size of the regional shadow economy was carried out according to the following formula:

\[
\text{GRP}_{\text{se}} = \frac{\text{PR} - \text{PR}_{\text{TB}}}{\text{GRP}} \cdot 100\% \tag{1}
\]

where \(\text{GRP}_{\text{se}}\) – the share of the shadow economy in the region’s GRP, %; \(\text{PR}_{\text{TB}}\) – legal profit included in the tax base for corporate income tax.

Tax reporting data are more reliable; to identify legal profit, the size of the tax base for corporate income tax is used, information about which is available on the official website of the Federal Tax Service. However, in some regions (Nizhny Novgorod Region, Perm Territory, Krasnoyarsk Territory, Primorye Territory), negative values of indicators were obtained. For further analysis of the indicators, official statistics were used, and the formula for calculating the state of the shadow economy began to look like this:

\[
\text{GRP}_{\text{se}} = \frac{\text{OR} - \text{TP} - \text{PR}_{\text{ST}}}{\text{GRP}} \cdot 100\% \tag{2}
\]

where \(\text{OR}\) – official remuneration of employees (excluding its hidden component), \(\text{TP}\) – net taxes on production (corporate property tax, transport tax and land tax paid by legal entities, license fees), \(\text{PR}_{\text{ST}}\) – profit reflected in the statistical reporting of organizations [22].

The results of assessing the state of the regional shadow economy in terms of tax and statistical discrepancies are not significantly different from each other.
RESULTS

In Russia, which is divided into regions, centrifugal tendencies largely contribute to the development of informal processes and make it difficult to legalize them. In modern conditions, it is very difficult for the federal center to regulate economic activity in the regions; therefore, for the purpose of effective government regulation, it is very important to assess the state of its shadow component.

Based on the tax methodology proposed by Fedotov et al. [22], the level of the shadow economy in the regions of the Russian Federation for 2007–2018 was calculated. An analysis of the data (Table 1) showed that in most regions there was a certain pattern: for the period from 2007 to 2009, there was a decrease in the level of the shadow economy, and starting from 2009, on the contrary, there has been a gradual increase in its indicators.

For the period from 2009 to 2018, the change in the level of the shadow economy in the regions of Russia was not the same. Thus, the regions were distinguished, where during the period under review there was a slight decrease or increase in indicators.

**Table 1**

State of the shadow economy in the Russian regions for the period from 2006 to 2018

<table>
<thead>
<tr>
<th>Dynamics</th>
<th>Average level of the shadow economy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20–30%</td>
</tr>
<tr>
<td>Negative (Decrease in level)</td>
<td>Moscow</td>
</tr>
<tr>
<td>Stability</td>
<td>Magadan Region, Republic of Crimea, Sevastopol, Republic of Tyva</td>
</tr>
<tr>
<td>Positive (Increase in level)</td>
<td>Amur Region, Astrakhan Region, Belgorod Region, Bryansk Region, Voronezh Region, Trans-Baikal Territory, Kaliningrad Region, Novgorod Region, Orenburg Region, Oryol Region, St. Petersburg, Republic of Buryatia, Republic of Karelia, Republic of Komi, Republic of Tatarstan, Ryazan Region, Samara Region, Sverdlovsk Region, Tomsk Region</td>
</tr>
</tbody>
</table>

The table shows that the shadow economy in most regions is quite stable and varies from 30 to 50%. Positive dynamics in the decline in the level of the shadow economy is observed in Moscow, the Arkhangelsk, Vologda, Kaliningrad, Kemerovo, Kostroma, and Leningrad Regions.

The growth of the shadow economy, while maintaining high values of the indicator, is noted in the regions of the North Caucasus Federal District. However, a positive trend in an increase in the shadow economy is characteristic of regions of all areas of the Russian Federation: the Amur Region, Astrakhan Region, Belgorod Region, Bryansk Region, Voronezh Region, Trans-Baikal Territory, Kaliningrad Region, Novgorod Region, Orenburg Region, Oryol Region, St. Petersburg, Republic of Buryatia, Republic of Karelia, Republic of Komi, Republic of Tatarstan, Ryazan Region, Samara Region, Sverdlovsk Region, Tomsk Region.

**DISCUSSION**

Regions of Russia differ from each other in size, population, natural resources, and features of economic development. Institutional changes taking place in Russia at the turn of the century led to the formation of a special model of shadow economic activity.

An analysis of the state of the shadow economy showed the unevenness of its development in different regions of the country.

Regional features of the shadow economy have significant structural differences and are determined by:

- geographical location;
- resource potential and possibilities of its use;
- general economic condition of the region;
- sectoral structure and general specialization of the region’s economy;
- social structure of the region, its traditions, and the specific archetype formed on their basis in relation to shadow activity.

The increase in the scale of the shadow economy in most regions of the Russian Federation since 2009 can be explained by a number of factors:

1. A sharp increase in uncertainty in the political and economic spheres, which significantly affects the decision-making of economic agents. In such conditions, they reduce consumption in the current period, so that, according to the theory of permanent income, it would be possible to smooth out possible fluctuations in income and consumption in the future, increasing savings [24]. In such conditions, legal capital is “hiding in the shadows”, and there is an increase in capital outflow abroad.

2. Habitualization of informal behavioral practices is a situation when informal rules replace formal rules of behavior developed in society over centuries of history and are actively used to regulate socio-economic relations. Polls conducted by VCIOM in 2008 and 2009 confirm the change in the priority of informal “rules of play” in the institutional structure of the state (69% of respondents) over legislatively enshrined norms (20%) [25; 26].
3. The state/regional regulation of the socio-economic sphere is of great importance for the development of the shadow component. Continuous changes in rules and laws, an unbearable tax burden, unavailable loans and excessive involvement of the authorities in business are just some of the problems in the economic sphere that an entrepreneur faces.

4. Corruption continues to be the main reason for the growth of the shadow economy. As part of this research, it was revealed that, when assessing the level of corruption, the opinions of Russians and experts were almost identical: 49.5% of the surveyed citizens and 47.5% of experts consider the level of corruption in modern Russian society to be high; 44.8% and 44.5%, respectively, assess the level of corruption as average, 5.7% and 8% – as low [27].

5. The gap between the interests of society and the ruling elite is caused by its isolation. Integrating into the system of public administration, individual representatives are actively implementing shadow strategies in the direction of “business takeover” and/or “state takeover”.

6. The rapidly developing processes of digitalization in the world lead to the erosion of geographical boundaries, which, of course, opens up new opportunities for the actors of the shadow economy. A reduction in production costs, the virtual nature of economic ties, the globalization of relations, and the movement of goods and services via the Internet are just some of the digitalization benefits, which are actively used by the shadow sector. Illusory anonymity, accessibility to a wide range of people, the absence of borders and administrative barriers, the difficulty of exercising control over the actors, the high speed of interaction and information transfer intensify shadow economic relations on the Internet. The existing regulatory framework does not take into account the key properties of the digital economy, and gaps in regulations are used to develop and strengthen shadow business in the information environment [28].

The inexhaustible economic potential of the shadow economy, modifications of its types and forms, lack of proper control, impunity and arbitrariness – all that forms an environment in which deep social and political conflicts arise, negative processes develop in all spheres of life, both in separate regions and in the entire state.

**CONCLUSION**

The obtained results on the assessment of the shadow economy of the constituent entities of the Russian Federation make it possible to identify the scale and trends in the development of the shadow activity in the regions, to predict its change and prospects.

The position of rejection and intense struggle against all manifestations of the shadow economy, actively declared by the authorities and business, does not diminish the urgency of the problem of the spread of hidden economic processes throughout the territory of the Russian Federation and its penetration into all spheres of society. At the same time, the current nature of the impact on shadow processes seems to be aspectual, unsystematic, and focused mainly on the identification of already occurred economic offenses or elimination of their negative
consequences, compensation for harm, and creation of formal anti-corruption departments or structural units.

The presence of the shadow economy in all Russian regions poses a threat not only to the economic security of a particular territory but also to the safe and sustainable development of the entire country. Certain measures developed within the framework of state policy in the field of taxation, finance, education, migration, support of entrepreneurship have become a significant achievement in the countering of shadow processes; however, they did not put an end to it, because the desire to maximize and optimize profits, and sometimes even survive in a harsh market environment gives rise to new forms and ways of conducting shadow economic activities.

ACKNOWLEDGMENT

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Systematization of the EAEU legal sources in the field of regulation of the service market in science

KEYWORDS
EAEU law; Eurasian Economic Union; integration; science service market; scientific cooperation; sources of law; systematization

ABSTRACT

Introduction. The law of the Eurasian Economic Union (hereinafter – the EAEU) contains provisions aimed at organizing scientific cooperation (and cooperation in the field of innovation) of its member states. The subject of this research is the totality of sources of the Eurasian Economic Union law in the field of regulation of the services market in science. The purpose of the research is to systematize the legal sources, containing norms governing relations in the services market in the field of scientific activity.

Materials and methods. The methodology of scientific research includes the dialectical method, General scientific logical operations (deductions and inductions, analysis and synthesis) and specific scientific methods (legalistic, comparative legal).

Results. As a result of the research, the author presents a system of sources of the EAEU law, norms in the field of legal regulation of scientific activities and scientific cooperation within the framework of the Eurasian economic integration: the Treaty on the EAEU, international multilateral and unilateral agreements implemented in the EAEU legal framework, normative acts adopted by the Supreme Economic Council and the EAEU Economic Commission.

Conclusion. The research results are applicable in further theoretical studies of the Eurasian economic integration and the EAEU law and have practical significance for the systematization of the legislation of the Eurasian Economic Union, development of legal techniques, EAEU lawmaking.

INTRODUCTION

Within the framework of the Eurasian Economic Integration, cooperation in the field of science and technology development is one of the fundamental directions that determine the further development of integration processes in the EAEU [14]. The level of competitiveness in the world market and the retooling of certain sectors of the economy of each state depends on the effectiveness of interaction between the member states of the Union. This is particularly relevant in the context of the transition to the fifth and sixth tenors of technology with global changes in the manufacturing sector of the economy.

The research of the EAEU legal sources in the field of regulation of the services market in science makes it possible to study the basics of such cooperation within the framework of integration. This research analyzes the totality of sources of the EAEU law in the field of regulation of the services market in science. The purpose of the research is to conduct and justify the systematization of the EAEU legal sources, containing the legal norms governing legal relations in the field of scientific cooperation of the EAEU countries.

RESEARCH MATERIALS AND METHODS

The research is of a general theoretical nature, carried out on the basis of a combination of methods application that ensured the possibility of understanding the internal structure of legal phenomena, analysis of the main sources of the EAEU law, and their systematization.

The applied dialectical method made it possible to focus on the dynamic, procedural component of being, to consider legal phenomena in dynamics, to identify cause-and-effect relationships in connection with the studied legal phenomena. The formal legal method is used to analyze the studied normative material, to understand the essence and significance of the normative act, based on its own content. The comparative legal method was applied in order to identify both the general, and special, individual in the study of legal phenomena. In the conducted study, such general scientific logical operations as deduction and induction, analysis and synthesis were applied.

LITERATURE REVIEW

In the analysis of scientific research in the field of the EAEU law, scientific and technological cooperation of the member states of the union, it was possible to emphasize a number of domestic and foreign scientists’ works. In their works, the influence of certain institutional entities on the development of the EAEU law in the field of scientific and technological integration is studied. Thus, I. V. Shugurova conducts a study on identifying and systematizing
the powers of the Eurasian Economic Commission in the field of scientific and technological integration of the EAEU member States [15].

A. S. Chanyshhev studied certain legal provisions of national and EAEU legislation for the legal regulation of labor relations, including research scientists in the framework of integration interaction [2]. I. V. Shugurova studies the issues of training highly qualified personnel and problems of the educational process in the EAEU [18].

There is a comprehensive research of the scientific team of the Ural State Law University "Liberalization of the services sector for research and implementation in the field of social Sciences and Humanities in the Eurasian Economic Union" [6]. The study determined the list of normative legal acts regulating the activities within the framework of the services sector, an analysis was conducted for the presence of administrative and other barriers in these acts, restricting the research work, mechanisms were developed to identify and overcome such barriers [6].

In general, most of the studies on the EAEU regulatory basis in the field of scientific activity are focused on certain areas of activity [10], institutions or law branches. Research in this area is mainly practice-oriented and solves specific problems of applying the EAEU legal norms and national legislations within the framework of regional integration [1]. The lack of conceptual theoretical studies that would make it possible to systematize the EAEU legal sources in the field of regulation of the services market in science once again emphasizes the relevance and scientific novelty of this research.

**RESEARCH RESULTS AND DISCUSSION**

Analysis of the EAEU legal sources in the field of regulation of the service market in science made it possible to identify the main directions of cooperation in the field of science and innovation of the Russian Federation and the EAEU countries (fig. 1).

Let us consider the directions of cooperation in the field of science and innovation of the Russian Federation and the EAEU countries in the context of their reflection in the EAEU legal sources.

First of all, we should focus on the main normative legal act – the Treaty on the EAEU, which contains many provisions aimed at organizing scientific cooperation (and cooperation in the field of innovation) of the Union states in certain sectors (types) of activity.

The most important area of cooperation in the framework of regional integration is the support of scientific and innovative development [3]. For the effective development of high-tech industries, the member states of the Union conduct joint research and development projects. Research activities within the EAEU are subject to indirect taxation. Indirect taxation rules of research activities are prescribed by the Treaty on the EAEU, according to which indirect taxes are collected in the territory of the works and services realization. It is determined that the place of works and services realization is the territory of the state-participant of integration, in
the case when research, development and experimental-technological (technological) works are acquired by taxpayers of this state. It is stipulated that research works for tax purposes are the organization and conduct of scientific research in accordance with customers’ project requirements.

Figure 1 Directions of cooperation in science and innovation of the Russian Federation and the EAEU countries

The Treaty on the EAEU specifically regulates the issue of obtaining special compensatory measures in cases of receiving subsidies in the form of assistance for research activities. Compensatory measures cannot be taken with such a specific subsidy as assistance for research activities carried out by economic entities, as well as higher educational institutions and scientific institutions on a contractual basis with economic entities, provided that such assistance covers no more than 75 % of the cost of industrial research or 50 % of the cost of developments at the pre-competitive stage. However, it is provided solely to cover the costs of personnel, tools, equipment, land and structures used constantly and only for research purposes; consultations and similar services used solely for research purposes; additional overhead costs incurred directly as a result of the research and other current expenses (for materials, supplies, etc.) incurred directly as a result of the research. It should be noted that this does not apply to basic research conducted by universities or research institutions independently. Basic research must necessarily ensure the expansion of scientific and technical knowledge, the goals of which should not be aimed at implementing new ideas in specific industrial production and making a profit [4]. On the contrary, industrial research should provide an increase in new knowledge that will be useful in the creation of new goods or services, the development of technological processes, as well as for their significant improvement.

The general legal regime of the services market in the research sector is determined by the Protocol on Trade in Services, Incorporation, Activities, and Investments (Annex No. 16
to the EAEU Treaty). According to this Protocol, the service market in certain sectors should comply with all characteristics of the single market. Member States of integration benefit from extending the single market of services to the maximum number of service sectors, ensured by gradually reducing barriers and restrictions provided for in national legislation.

The EAEU member States, together with the EAEU Commission, develop services for certain market sectors, such as hotel services, franchising services, engineering services, and liberalization plans. Thus, the liberalization plans of certain sectors of the service market include stages of the formation of a single market, while the terms for the participating states are different. Member states can start creating a single market for services on the basis of reciprocity through bilateral cooperation.

As for scientific activities in the EAEU, the liberalization plans have been approved for the following service sectors: conducting research and their implementation in the field of social and humanities, conducting research and creating experimental developments in the field of natural sciences [12].

The implementation of these plans is assigned to the relevant working group. The launch of the single market for these sectors of research services is planned for 2020. Until that time, subsections 1–4 of Section VI of the Protocol apply in these service sectors [5; 6; 7].

Let us consider the international contractual framework implemented in the legal framework of the EAEU. The international contractual framework of the EAEU includes many multilateral and bilateral agreements concluded between the EAEU states that determine the basis for scientific research in general and in certain economic sectors [8]. It should be noted that agreements can be concluded even before the signing of the Treaty on the EAEU, but subsequently be integrated into the already formed contractual legal framework of the EAEU. They are applicable, as a rule, in the part that does not contradict the Treaty on the EAEU, supplementing the regulation of those issues, that are not directly or indirectly covered by the EAEU contractual legal framework.

The main aim of integration is to create equal opportunities for education and access to scientific and cultural achievements. International agreements are of interest in this regard. In order to ensure equal access to education and scientific and cultural achievements, each member state should take measures to eliminate barriers to this activity in the research market of regional integration.

It should be noted that the legislation of the countries of the Commonwealth of Independent States (hereinafter-the CIS) on scientific activities is included in the legal framework of the EAEU, regulating the regime of scientific research in the territory of the EAEU, since the EAEU states are also members of the CIS. The Agreement "On Mutual Recognition and Equivalence of Education Documents, Academic Degrees and Titles", adopted before the establishment of the Eurasian Economic Union, should be particularly mentioned here. Although not all participating countries have joined this Agreement, for example, Armenia has not ratified the agreement, nevertheless, it is subject to application in the part that does not contradict the Treaty on the EAEU.
It should be noted that the provisions of the Treaty on the EAEU contain only some aspects of recognizing the equivalence of educational documents, academic degrees and titles, while the provisions of the Agreement make additions and allow it to be applied subsidiary. The provisions of the Treaty on the EAEU regarding the recognition of educational documents, academic degrees and titles are aimed at the legal regulation of relationships only in terms of formalizing labor relations or civil law relations. At the same time, research work may be carried out on the basis of other agreements, for example, state (municipal) contracts, agreements concluded on the basis of procurement results. The agreement fills the indicated gaps, since it is not limited only to the sphere of labor and civil law relations [5; 11; 13; 19].

An integral part of the EAEU law in the field of legal regulation of scientific activity are bilateral agreements that fill the gaps in legal regulation (unless otherwise provided by the Treaty on the EAEU, multilateral agreements of the EAEU member states). They also contain some exceptions to the general regime of regulation of the research market in the Eurasian space in specific areas of cooperation.

Let us consider specific bilateral agreements between the EAEU member States. Thus, the Agreement on Scientific and Technical Cooperation (concluded on November 25, 1996, Moscow) between the Russian Federation and the Republic of Kazakhstan provides for some general forms of cooperation in the field of research work between the Government of the Russian Federation and the Government of the Republic of Kazakhstan. However, most of the bilateral agreements between the Russian Federation and the Republic of Kazakhstan in the field of science are agreements on scientific cooperation in certain sectors (branches) of economy and scientific and technical cooperation: nuclear energy sector, industrial and scientific-technical cooperation of defense industry enterprises, military-technical field, field of geological study and subsurface use. They usually contain more specific rules on the legal regime of joint scientific research.

Treaties on mutual recognition of education documents, qualifications, certification, and other interrelated issues constitute a special category of agreements. We highlight specific provisions: recognition of the equivalence of issued educational documents, development of provisions on the recognition of new documents that can be approved after the reforms [16]; recognition of qualification documents on academic degrees and titles issued by the relevant national authority of the other Party, as well as recognition of the comparability of these documents is established in the process of re-certification of their holders [17].

Agreements between the Russian Federation and the Republic of Belarus provide for certain branches of bilateral cooperation enshrined in bilateral agreements: scientific and technical cooperation; military cooperation; mutual recognition of the equivalence of educational documents, academic degrees and titles; cooperation in the field of culture, education and science. These agreements contain a number of standard norms, obliging states to ensure compliance with certain general guarantees in the implementation of scientific research in certain sectors of the economy.

A specific block of bilateral agreements is made up of documents of the Union state, which are mostly planning documents, where research service providers are already
directly identified, or which contain a report on the implementation of any planned research work.

The main bilateral agreements between the Russian Federation and the Republic of Armenia establish General rules for the implementation of scientific research by the subjects of these EAEU States in such areas as certification of highly qualified scientific and scientific-pedagogical personnel; industrial and scientific-technical cooperation of defense industry enterprises; scientific and technical cooperation; mutual recognition of educational documents, academic degrees and titles. These agreements establish a general regime for scientific research, which does not differ from the regime established by similar agreements concluded between other EAEU states. Meanwhile, the Agreement on the expansion of scientific relations and exchange of scientific information between the Russian Academy of Sciences and the National Academy of Sciences of the Republic of Armenia (concluded on 11.06.1994, Moscow) contains special rules for the organization of scientific research and the mode of stay of researchers of these scientific institutions. We also mention the Agreement between the Government of the Russian Federation and the Government of the Republic of Armenia on cooperation in the field of higher education (concluded on 11.01.1993, Moscow). In article 9, the Parties allow their bodies of state attestation of scientific and pedagogical personnel to conduct attestation work on the affairs of citizens of the other Party's state on a reimbursable basis, however, the procedure and terms of this attestation work have not been identified.

Some general forms of cooperation in the field of research are provided for by Agreements between the Russian Federation and the Kyrgyz Republic. These include the Agreement on the expansion of economic, scientific and technical cooperation between the Kyrgyz Republic and St. Petersburg (concluded 30.05.1993, Saint-Petersburg), the Agreement between the Government of the Russian Federation and the Government of the Kyrgyz Republic on cooperation in the humanitarian sphere (concluded 05.04.2012, Bishkek), the Agreement between the Government of the Russian Federation and the Government of the Kyrgyz Republic on cooperation in the field of higher education (concluded 29.03.1996, Moscow). These agreements contain a number of standard norms obliging States to ensure compliance with certain general guarantees for the implementation of scientific research.

The study made it possible to systematize the EAEU legal sources in the field of regulation of the service market in science in the directions of cooperation in the field of science and innovation of the Russian Federation and the countries of the Eurasian Economic Union (Table 1).

The implementation of the EAEU states obligations in the field of forming a single market for research and the elimination of all possible legal barriers is impossible without flexible regulation by the EAEU bodies. In this regard, we should talk about other sources related to the EAEU legal framework. Thus, the Supreme Eurasian Economic Council approved all liberalization plans, including for the sector of services in the field of scientific research [12], as well as other documents on the implementation of scientific research in certain sectors of the economy. The Eurasian Economic Commission also approves a number of planning documents in the field of scientific research, as a rule, in certain sectors of the economy.
Table 1

Directions of cooperation in science and innovation of the Russian Federation and the countries of the Eurasian Economic Union, their reflection in the EAEU legal sources

<table>
<thead>
<tr>
<th>Direction of cooperation</th>
<th>EAEU legal sources</th>
<th>Enshrined positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint research and development projects</td>
<td>The Treaty on the EAEU</td>
<td>Indirect tax collection; place of works and services implementation. Organization and conduct of scientific research in accordance with customers' project requirements. Procedure for obtaining special compensatory measures in cases of receiving subsidies in the form of assistance for research activities</td>
</tr>
<tr>
<td>General legal regime of the research services market</td>
<td>Protocol on Trade in Services, Incorporation, Activities, and Investments (Annex No. 16 to the EAEU Treaty)</td>
<td>Create a service market according to the characteristics of the single market. Reducing barriers and restrictions in national legislation. Liberalization by service sector: conducting research, implementing it in the field of Social Sciences and Humanities, creating experimental developments in the field of natural sciences</td>
</tr>
<tr>
<td>Scientific and technical cooperation</td>
<td>Agreement between the Government of the Russian Federation and the Government of the Republic of Kazakhstan on sci-tech cooperation (Moscow, 25.11.1996)</td>
<td>General forms of cooperation in research and development. Scientific cooperation in certain sectors (branches) of economy, scientific and technical cooperation: nuclear energy sector, industrial and scientific-technical cooperation of defense industry enterprises, military-technical field, field of geological study and subsurface use</td>
</tr>
<tr>
<td>Mutual recognition of education documents, qualifications, certification, other interrelated issues</td>
<td>Agreements between the Russian Federation and the Republic of Belarus</td>
<td>Mutual recognition and equivalence of education documents, academic degrees, and titles</td>
</tr>
<tr>
<td>Mutual recognition of education documents, qualifications, certification, other interrelated issues</td>
<td>Agreement between the Russian Federation and the Republic of Armenia</td>
<td>Mutual recognition and equivalence of education documents, academic degrees, and titles</td>
</tr>
<tr>
<td>Cooperation in the field of culture, education, and science</td>
<td>Agreements between the Russian Federation and the Republic of Belarus</td>
<td>Scientific and technical cooperation. Military cooperation. Ensuring compliance with general guarantees in the implementation of scientific research in certain economic sectors</td>
</tr>
<tr>
<td>Conducting scientific research (general regime, implementation rules)</td>
<td>Agreement between the Russian Federation and the Republic of Armenia</td>
<td>Procedure for certification of highly qualified scientific and scientific-pedagogical personnel; industrial and scientific-technical cooperation of defense industry enterprises; scientific and technical cooperation; humanitarian cooperation</td>
</tr>
<tr>
<td>Expansion of scientific relations and exchange of scientific information</td>
<td>Agreement between the Russian Academy of Sciences and the National Academy of Sciences of the Republic of Armenia (Moscow, 11.06.1994)</td>
<td>Special rules for the organization of scientific research and the mode of stay of researchers of these scientific institutions</td>
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</tr>
<tr>
<td>Cooperation in higher education</td>
<td>Agreement between the Government of the Russian Federation and the Government of the Republic of Armenia (Moscow, 11.01.1993)</td>
<td>Permission for state certification bodies of scientific and pedagogical personnel to conduct attestation work on a reimbursable basis</td>
</tr>
<tr>
<td>Economic, scientific, and technical cooperation</td>
<td>Agreement between the Kyrgyz Republic and St. Petersburg (St. Petersburg, 30.05.1993)</td>
<td>Expansion of economic, scientific, and technical cooperation. Standards and compliance with guarantees during research</td>
</tr>
<tr>
<td>Humanitarian cooperation</td>
<td>Agreement between the Government of the Russian Federation and the Government of the Kyrgyz Republic (Bishkek, 05.04.2012)</td>
<td>Expansion of economic, scientific, and technical cooperation. Standards and compliance with guarantees during research</td>
</tr>
<tr>
<td>Cooperation in higher education</td>
<td>Agreement between the Government of the Russian Federation and the Government of the Kyrgyz Republic (Moscow, 29.03.1996)</td>
<td>Expansion of economic, scientific, and technical cooperation. Standards and compliance with guarantees during research</td>
</tr>
</tbody>
</table>

**CONCLUSION**

Thus, the system of the EAEU legal sources in the field of regulation of the service market in science can be presented as follows: The Treaty on the EAEU; other international contractual framework implemented in the legal framework of the EAEU, to which we refer multilateral and bilateral agreements; other sources related to the legal framework of the EAEU, including normative acts adopted by the Supreme Eurasian Economic Council, normative acts adopted by the Eurasian Economic Commission.

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Budget, motives and strategies for financial independence of undergraduates

KEYWORDS
financial independence of students; financial strategies; student's budget; student labor activity; soft budget constraint

ABSTRACT

Introduction. The problems of scientific analysis, where the subject of study is the financial independence of undergraduates, mainly focuses on two directories: the study of the academic performance of undergraduate and the factors affecting it; financial condition of undergraduate depending on tuition fees. In modern studies, the issues of financial independence of students, their budget are not given due attention. The employment of students is often seen as one of the factors that negatively affect their academic performance, or in the context of forced work caused by high tuition fees.

In today’s pandemic realities, the aspect of the financial independence of students is actualized, while the problem of students’ labor activity during training is of scientific and practical interest as a forced measure to maintain their well-being in order to gain financial independence.

Materials and methods. The survey was attended by: 2-4-year students of the Bachelor's degree program "Applied Economics and Finance" (38.03.01 Economics) of the Institute of Economics and Management of Ural Federal University was carried out. The total number of students in 2-4 courses on the program is 284.

Results and discussion. As a result of the study, the key motives for obtaining financial independence have been identified, which boil down either to the forced need to find finances, or to the desire to obtain financial independence and the formation of labor and financial competencies; formulated the basic financial strategies of students in relation to budget planning, budget optimization - passive as an orientation towards transfers from parents and the state, active as a search for grant support or going to work; it was found that the problem of choosing between work and study as an additional criterion included opportunity costs, measured as deterioration in academic performance; it was found that significant financial support from parents (family) and its increase with an increase in student spending forms a "soft budget constraint" for a student, reducing the motivation to gain financial independence. It was founded that more than 20% of 2-4-year students have part-time gob, while 2/3 of the working students do not “sacrifice” their studies for work. This is due to the fact that the motivation for choosing a job is voluntary. The survey data allowed to conclude that students are focused both on the improving of labor and financial competencies. It was revealed that the main source of income for their budget is transfers from parents (more than 90%) but own earns are less than 6% of the student budget. It should be noted that there was a large range in the students’ income: from 2,500 to 36,000 rubles. This may be due to both the income of the family in which the student lives and the model of financial support of the parents: they admit the independence of students according to their budget or the autonomy of their student children is practically absent.

Conclusion. The results of this study are aimed at comprehending the educational, scientific, labor activity of a student, taking into account the motives for obtaining financial independence, which can be taken into account in the design of individual educational trajectories of students, the development of grant projects and offers of internship, educational loans, which together ensure the strengthening of the financial independence of students.

INTRODUCTION

In the modern world, the share of students in the total population of the country (Percentage of students in tertiary education enrolled in Education programs, both sexes (%)) can range from 1 to 7 % of the total population [1]. In Russia, at the beginning of 2020, 4,068,327 students are enrolled in higher education programs [2], which is just over 2.7% of the population and fits into the conditional cluster of countries in Europe and North America. The scientific community recognizes that students “as a socio-age group can be considered as a force that has a destabilizing effect”, but at the same time, “act as a stabilizing factor” of the socio-political [3, p. 47] and, we add, the socio-economic state in the country.

In this regard, it is important to recognize the issue of the financial condition of students. The financial capabilities of students largely depend on parents, tuition fees, and the system of educational loans in the country. According to Lusardi, Mitchell and Curto, the financial autonomy of students can be a key factor affecting both the financial well-being of each individual and the overall quality of life in the country [4].

Along with this, student performance can be viewed as an imputed (alternative) cost of work during training. By deciding to work, the student reduces his time for study activities, thereby academic performance may deteriorate. This means a decrease in the effective wage rate, and therefore a reduction in the student's budget.

In today's realities of the coronavirus crisis, the aspect of students' financial independence is actualized. The following questions become urgent: do they have to look for work to pay for their education, to what extent do students act as "dependents" in their household? Consequently, the problem of students' labor activity during training is of scientific and practical interest as a forced measure to maintain their well-being or the desire of students to gain financial independence. These are the key questions of the present article.

The purpose of the work is to study the factors affecting the student's budget, to identify the possibilities of financial independence of students based on the data of a survey of students of 2-4 courses of the bachelor's program "Applied Economics and Finance" (Area of studies 38.03.01 "Economics") of the Institute of Economics and Management of Ural Federal University named after the first President of Russia B. N. Yeltsin (hereinafter – UrFU).

MATERIALS AND RESEARCH METHODS

The research is based on key methods of scientific analysis: comparative analysis, incomplete induction, modeling, survey. The study carried out a first round of empirical analysis: questionnaire design, survey conduct, and descriptive statistics. A continuous survey of 2-4-year students of the Bachelor's degree program "Applied Economics and Finance" (38.03.01 Economics) of the Institute of Economics and Management of Ural Federal University was carried out.
For the convenience of interacting with students and prompt collection of information, an online survey form was developed. The article uses data from 251 student questionnaires (the total number of students in 2-4 courses on the program is 284), with the exception of incorrectly (or incompletely) filled forms for statistical analysis. The sample does not include first-year students, since at the moment (the beginning of the first semester) there cannot be an answer to the question about their progress. The questionnaire included 14 questions for students related to personal characteristics (course of study, gender), the structure of their personal budget, free time, academic performance, living conditions. This study includes questions about the student's assessment of their progress (questions 40, 41 of the questionnaire), taken from the research of E. S. Shmarikhina [5]. The questionnaire includes a question related to quarantine during the period of quarantine measures in order to identify the impact of the current pandemic situation on making decisions about employment. During the questionnaire procedure, there were no violations of the terms of consent to the processing and publication of personal data of students. Note that students' data are not explicitly used anywhere, they are aggregated and given in relative terms.

ANALYSIS OF THE LITERATURE

The study is aimed at studying the academic performance of students, identifying the financial condition of students and the factors that influence it.

In domestic studies, for example, the work of A. S. Shmarikhina studied the factors of academic performance, among which the availability of work for junior students is considered significant [5]. The distraction of a student from studies for work has a significant impact only in junior courses due, in our opinion, to the lack of competence in time management, the ability to distribute efforts between study and work. It can be concluded that the opportunity costs of choosing a job as a deterioration in academic performance are higher in junior years than in senior courses. When the skills to optimize the distribution of time between work and study already appear, as well as the amount of contact (classroom) load among students, the availability of work may not have a negative impact on the result. However, no unequivocal conclusions on this score have been given in the studies.

Meanwhile, in the statistical analysis of P. A. Kanapukhin, V. V. Korotikh, S. Shchekunkikh, among the key factors of academic performance, only the source of funding was taken into account: "The performance of students at their own expense is significantly inferior to the performance of students at the expense of budget funds" [6, p. 35].

O. V. Kotomina believes that interest in the problems of the formation of emotional intelligence in higher education is due to the fact that the degree of development of this psychological personality characteristic has a positive effect on students' motivation for learning, adaptation at the university and on academic results of education. Students who have a high level of emotional stability, the ability to adequately perceive their own and other
people's experiences and manage them, more successfully master professional competencies and, as a rule, are good communicators. Subsequently, such graduates become highly demanded specialists in the labor market [7]. L. Antonucci emphasizes that the emergence of a feeling of insecurity among students, especially because of their relationship with their parents, leads to students looking for additional sources of income [8].

In our study, a student's financial well-being is considered in relation to his emotional state, family relationships and academic performance. Insufficient financial security of the student adversely affects his studies. The logic here is this: being in a difficult financial situation and, in connection with this, being emotionally depressed, the student will look for ways to solve this problem, thereby neglecting his studies.

The key in studying the student budget should be considered the structure of income, where the main sources are help from parents, which we consider as transfer payments, scholarships and personal labor earnings. According to researchers A.S. Jr. Settersten, B. Ray, parental support accounts for approximately 10% of the annual budget for children aged 18 to 21 [9]. Mangan et all. found that more than 1/3 of students' budget consists of material aid from parents [10, pp. 465]. As for expenditures, the main items on them are food, transport, Internet, among others – entertainment, sports, clothes.

In a practical study by Hordysy & Clark, based on interviewing students (at a Northern Red Brick University), they found that additional items of expenditure for British students are interest on the loan, which they have to take to cover current expenses, primarily the rent. Some students, in turn, make savings in the form of deposits [11]. This behavior is aimed at optimizing the budget, intertemporal selection of budget items during study periods and summer months.

Callender & Kemp, based on surveys of more than two thousand full-time students of British universities (1998-1999), compiled the structure of undergraduate budget revenues and expenditures [12] (see the Table 1).

Table 1

<table>
<thead>
<tr>
<th>UK undergraduate budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues per cent type</td>
</tr>
<tr>
<td>28 family and friends, including parental contributions</td>
</tr>
<tr>
<td>19 student loans</td>
</tr>
<tr>
<td>27 maintenance grant</td>
</tr>
<tr>
<td>14 paid employment</td>
</tr>
<tr>
<td>6 other miscellaneous income</td>
</tr>
<tr>
<td>3 Access Funds and/or their university's Hardship fund and other student support</td>
</tr>
<tr>
<td>2 social security benefit</td>
</tr>
</tbody>
</table>

It should be noted that twenty years after the Callender & Kemp study [12], the budget structure is almost the same.
Let us supplement the new sources of income that have developed in universities and present the basic model of the student's budget (see the Table 2).

**Table 2**

**Budget structure of undergraduate: basic model**

<table>
<thead>
<tr>
<th>Revenues</th>
<th>Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>private transfers</td>
<td>basic needs</td>
</tr>
<tr>
<td>parents' money</td>
<td>food</td>
</tr>
<tr>
<td>family members' money</td>
<td>living and housing costs</td>
</tr>
<tr>
<td>state transfers</td>
<td>transport</td>
</tr>
<tr>
<td>bursary</td>
<td>Internet</td>
</tr>
<tr>
<td>state or public funds</td>
<td>textbooks and stationery</td>
</tr>
<tr>
<td>grant</td>
<td>interest on a loan</td>
</tr>
<tr>
<td>own sources</td>
<td>leisure</td>
</tr>
<tr>
<td>wage</td>
<td>clothes</td>
</tr>
<tr>
<td>miscellaneous income</td>
<td>shoes</td>
</tr>
<tr>
<td>interest of a deposit</td>
<td>investment in human capital</td>
</tr>
<tr>
<td>borrowed funds</td>
<td>education</td>
</tr>
<tr>
<td>educational loan overdraft</td>
<td>sports, arts</td>
</tr>
</tbody>
</table>

Thomsen & Haaren-Giebel have found that “the main source of income for students is financial support from parents. Here, tuition fees caused an increase in the proportion of students receiving financial support from parents or partners, but only to a small extent (+3 percentage points). The additional financial burden somewhat increases the necessary support from the parents” [13]. This means “soft budget constraints” for students, where higher spending warrants an increase in transfer payments. As a result, students' financial strategy does not change.

It should be noted that when it comes to a student's personal earnings, researchers disagree on the relationship between work and study, which is largely explained by the motives for choosing work activity during study. Let us emphasize that the motives of students' search for work are different: a forced measure to support their urgent needs or a desire to gain their own financial independence. Modern research confirms this idea [8; 14-16]. For example, Hordysy & Clark found that in order to achieve the goal of obtaining financial independence, students "paid" with their personal time, while the time spent on work disrupted sleep patterns, negatively affected their studies, and limited interaction with peers [11].

Based on the analysis of the financial situation of students and the motives of employment, F. R. Safiullina draws conclusions about the motives for students to go to work: financial need to pay tuition fees or personal expenses; gaining experience of financial independence and the acquisition of labor competencies, experience and work skills [14].

Czarnecki, Korpi & Nelson argue that student employment itself may have positive effects and not negatively affect learning. Researchers note that for students from socially disadvantaged families, going to work is forced, since they need to financially support themselves [15].
conclusions are contained in the study by Borjas et al: about 40% of the surveyed students worked 30 or more hours a week; in terms of academic performance, there was a negative trend for financially dependent students (those with student loans) and financially independent students (those who were self-financed). It is noteworthy that no significant differences were found between the estimates of who worked full time and part time [16].

Antonucci notes that more than 50% of the surveyed students cite the lack of support from the state, the feeling of insecurity and insecurity that arises during training due to their relationship with their parents as reasons for choosing employment [8].

Different motives for choosing a job serve as the basis for different financial strategies of students:

- transfer support for parents and/or government;
- search for grant support;
- get a job (part-time job or summer work) to gain financial independence.

It is important to emphasize that the first strategy reflects the student's passive position in relation to financial autonomy, while the second and third strategies are focused on the active behaviour of students in gaining financial independence. Students can focus on their development, use the opportunities provided by the university and funds for grant support or personal scholarships, without resorting to going to work. As Hordysy, Clark & Vickers found out, this strategy is typical for students from the middle-income group [17].

In a study by Graziosi et al. (2020), conducted with university students (Italy), it was revealed that the strategy of seeking grant support is becoming popular among the student environment, that receiving financial assistance in the form of a grant has a positive impact on the student budget [18].

Of interest is the study of student financial strategies conducted by Christie & Munro, in the course of which it was revealed that students from low-income groups of families tend to go to work because of the search for a livelihood, so they agree to low-paid jobs. It was found that where parents are well provided for their children, most students look for an additional source of income in order to increase independence in making decisions about spending [19].

Antonucci speaks in support of the idea of forced motives to go to work. Due to the lack or insufficient state support or family sources, students need to rely on sources of the labor market, go to work to fill the deficit of their financial resources [20].

It should be noted that parents, the way they are brought up, influences the formation of the financial strategy of students. As Powles notes, the foundations of financial behaviour are laid in the early years [21]. Covarrubias et al. considered the soft and hard forms of student independence [22]. Soft financial independence means significant support from the family, motivating students from such families to financial independence in order to acquire financial competencies. Conversely, strict financial independence suggests that the share of transfers from parents in a student's budget will be small and tend to decrease.

Of course, the financial well-being of the family will have a significant impact on the financial behavior of students. In low-income groups of families, rigid financial independence is the
only option. In families with incomes above average and average, alternatives to choosing soft or hard financial independence may be available, where the main criterion is the educational role of parents.

Wilkins, Shams and Huisman’s study of the relationship between tuition fees and student performance found that “a £ 1,000 increase in tuition fees leads to a 4.4% decrease in university attendance, while an increase in grants and loans leads to an increase in attendance” [23]. This again demonstrates the differences in the motivation for choosing a job.

Practice shows that in foreign universities at least a quarter of all students in senior courses work. For example, Braidford, Houston & Lincoln (2000), a questionnaire survey of students at the University of Northumbria showed: “36.6% of students had a semester job at the time of filling out the questionnaire (while 54% had worked at some time during the academic year before the survey was conducted) ... The average number of hours worked per week was 12” [24].

An analysis of studies from different years has shown that the key motives for students’ choice of work remain approximately the same; no obvious country differences (although the analysis is dominated by European countries) have not been identified.

Next, let us consider how the situation with the financial independence of students in Russian universities is developing in the context of the “New normal” associated with a global exacerbation of the epidemiological situation.

**RESEARCH RESULTS AND DISCUSSION**

In order to solve the research problems, we have prepared a questionnaire, where the first part involves the establishment of the individual characteristics of the interviewed students. The composition and characteristics of the survey participants according to the criteria – gender, training course – are presented in Fig. 1-3.

![Figure 1 Composition and characteristics of undergraduates participating in the survey](image-url)
The distribution of survey participants by year of study (Fig. 1) corresponds to the total number of students enrolled in the programme. Of the total number of respondents, 92.8% of students study on a contract form (Fig. 2), which is due to the quota - there are only 6-7 budget places in each course.

![Figure 2](image_url) Distribution of the number of interviewed students: budget and contract forms of tuition

The research data allowed us to analyze the academic performance of the students participating in the survey (Fig. 3).

![Figure 3](image_url) Academic performance of students participating in the survey
The program in which students are trained is of an applied nature, focused on practical activities. The educational process includes master classes with corporate partners, educational excursions to enterprises. There are also proposals from partners-employers for the employment of students. It is understandable that more than 20% of 2-4-year students have part-time job (Fig. 4), while 2/3 of the working students do not “sacrifice” their studies for work. In our opinion, this is due to the fact that the motivation for choosing a job is voluntary.

**Figure 4** Involvement of students in labor activity

Let us consider the relationship between the employment of students and the year of study at the university (Fig. 5).

**Figure 5** Distribution of the number of employees by years of study
The research showed that junior students are completely immersed in the educational process. So, out of the respondents, only nine 2nd year students work. Fourth-year students, having a different academic classes, are focused on finding a job, therefore, among all working students, the majority are fourth-year students.

The survey data allowed us to conclude that students are focused both on the acquisition of labor competencies and on the acquisition of financial independence. It was revealed that the main source of income for their budget is transfers from parents (Table 5), and students are not independent economic agents, but are only preparing to become them.

It is interesting for the purpose of the research to establish what influence the pandemic situation had on the student's decision to go to work (Fig. 6). Among those respondents who work, no obvious dependence on the quarantine situation has been identified. It is possible that those who found a job during quarantine were motivated by the fact that going into the distant learning format gives them greater freedom in the allocation of their study time, design of an individual learning path.

![Figure 6](image)

**Figure 6** Labor activity of students during the period of quarantine measures

Average income is understood by students as a budget that they have at their disposal. Information of income was provided by all students, including those who had no earned income.

**Table 4**

<table>
<thead>
<tr>
<th>Budget</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget</td>
<td>12271,15</td>
<td>10225,96343</td>
<td>10001</td>
<td>12000</td>
</tr>
</tbody>
</table>

Descriptive statistics of income (Table 4) showed that, on average, students have a larger amount than the subsistence minimum in the Sverdlovsk region [25]; therefore, in the conditions of the model of “hard” financial independence according to Covarrubias et al.
they could provide themselves at a minimum level. Most often, students named the amount of 12 thousand rubles, which they have on a monthly basis (Table 4). It should be noted that there was a large spread in the income of students: from 2,500 to 36,000 rubles. This may be due to both the income of the family in which the student lives and the model of financial support of the parents: they admit the independence of students according to their budget or the autonomy of their student children is practically absent. Data on the structure of students' income are presented in Table 5.

| Table 5 |
|-----------------|------------------|
| **Income** | **per cent, %** |
| money from parent and relatives | 91.5 |
| bursary | 2.6 |
| earns | 5.9 |

It is obvious that students are financially dependent on their parents or family. Perhaps this is a feature of the sample: on the Applied Economics and Finance programme, almost all students from medium and high-income families study on an off-budget form. In this respect, the data of answers to the question "How often do you have to save" are indicative. According to the survey, the average value was 3.25, while the rating scale varied from "1 - often" to "5 - I don’t think about it". In our opinion, this indicates a “soft budget constraint” for students. In general, as shown by empirical research, students have little financial independence, but are focused on increasing it.

**CONCLUSION**

According to the results of the theoretical and empirical research, it can be noted that in scientific research the problems of students' labor activity during training are focused on identifying the relationship between the social status of a student (low, medium and high-income groups) and going to work. Many studies have noted: the forced need to start work is characteristic of students from low- and medium-income groups; employment tends to negatively impact academic performance.

The main motives of students when choosing labor activity are the forced need for their own support, the desire to gain financial independence, the desire to acquire labor and financial competencies.

The study identified the main financial strategies: passive - reliance on transfer support from parents, government, university; active - seeking grant support and / or going to work.

The academic performance of students is considered as the imputed (alternative) costs of work during training, which means that they reduce the effective wage rate, as a result, they reduce the motivation to work.
The key sources of students' income are identified: transfers from parents and the state, grants, own income. Financial support to parents due to an increase in tuition fees or an increase in students' needs in relation to their expenses creates a "soft budget constraint" for the student, thereby reducing the motivation to gain financial independence and go to work part-time during the period of study at the university ...

The criterion for choosing between work and study should be called the opportunity cost, measured as a deterioration in academic performance, which reduces motivation to work in the younger years and does not significantly affect the graduation course.

The obtained conclusions about the motives and financial strategies of students should be borne in mind when designing individual educational trajectories of students, in the development of grant projects, internship, as well as educational loans, which ensure the strengthening of the financial independence of students.

REFERENCES


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